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DYESTUFFS MONTHLY SUPPLEMENT: Has the British Dyestuffs Industry Helped the Users? By Dr. James Morton; Basic Intermediates for Dyestuffs, by "Consultant"; Dyes and Their Applications, by L. J. Hooley.. 23–30

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Dyestuffs Manufacturers and the Act

A CONTINUANCE of the methods and machinery of the present Dyestuffs (Import Regulation) Act, but a prohibition of import only where a British maker is prepared to supply an equivalent product at an equal price, is the main suggestion in a memorandum which has just been issued by the Association of British Chemical Manufacturers setting out the views and policy of the dyestuff makers, and forming, as it were, the completion of a trilogy of which the Report of the Dyestuff Industry Development Committee and the memorandum of the Colour Users' Association were the earlier volumes. Two requests are made by the manufacturers. Firstly, they ask that the Licensing Committee should set up a sub-committee of three independent members with power to inquire into the price of a foreign dyestuff. If it is found that that price might be detrimental to the sound development of the industry in this country, then the grant of an import licence should be refused. Secondly, they appeal to the consumers to agree that when a new product is placed on the market its price should be fixed for the ensuing six months at the price ruling for the corresponding imported product.

The memorandum tells a proud story of achievement, and briefly its message is this: The British Dyestuffs Industry is prepared to meet *fair* competition, but it demands a guarantee against unfair competition, price-cutting and dumping. The value of this industry in times of peace, its absolute necessity in the event of hostilities—as some would say, its guarantee against hostilities—make it the one industry which we should provide with a guarantee of some kind against extinction. That guarantee, it is suggested, should be mainly an independent committee, mindful of the dyestuffs industry, yet certainly not unmindful of general trade needs.

Of the success achieved by the British industry under the wing of the Act there can be no doubt. Its production in 1929 was over six times that of 1913 by weight and it provided 90 per cent. of the home consumption by weight and 74 per cent. by value. There is the astonishing fact—when one considers the time in which it has been accomplished—that it now affords a more extensive range of colours than any country except Germany and Switzerland, and British dyes are admitted to be fully equal in quality to any foreign competitive products. Prices have been reduced to a level at which the burden on the consuming industries is negligible. The British industry has, indeed, been an important competitive factor in reducing the price of dyes. A general account of how it has done so is given in the Memorandum, but more detailed instances will be found in a section of Dr. James Morton's address to the British Association, which we reproduce in our Dyestuffs Supplement this week.

Two very interesting minor effects have been found to result from the operation of the Act. The licensing routine and analysis, and the knowledge of the purposes for which colours are required in industry have provided material of great assistance to the dyestuffs manufacturer and enabled him to gauge more exactly the requirements of consumers. Further, the protection enjoyed in this country has in practice been applied in Australia, where foreign dyestuffs have been excluded when there is a British equivalent available.

An answer is provided by the Memorandum to the criticism that has been levelled against the overseas marketing methods of the British manufacturer. It is pointed out that the dyestuffs salesman must of necessity have high technical qualifications. Technical men in the present state of the industry are needed at home and many cannot be spared as salesmen. The question is linked up with another which received such emphasis from eminent chemists at the recent British Association discussion, the way in which the dyestuffs industry both creates the demand for chemists and provides them with unrivalled training. When it attains, as with reasonable security it may soon expect, a sufficiency of adequately trained men, some of them will be sent in quest of export markets, at present nursed by highly qualified German salesmen. A further difficulty in the way of trade has been the high

tariff barriers behind which many nations have been building up their own industries. In spite of all this there remains the fact that our export trade in dyestuffs is growing steadily.

Commercialising Inventions

RESEARCH chemists, or chemical engineers who regard with reverence the mysteries of floating new companies or commercially developing new inventions or processes, will find several matters of interest in the presidential address of Mr. Henry Morgan, president of the Society of Incorporated Accountants and Auditors. The shareholder who has unselfishly subscribed the funds for these adventures, attracted by the reputable names attached to many of them, may also find matter for reflection.

Examining the figures for the last six months of 1928, Mr. Morgan found that the prospectuses of 58 companies, formed for the purpose of establishing new businesses or developing new inventions or processes, were advertised in a London newspaper. Their issued capital amounted to £15,117,000 and the estimated profits of 52 of the companies totalled £5,219,000. The prospectuses of the remaining six predicted substantial profits but modestly refrained from stating any amounts. According to the latest information he had been able to obtain concerning these 52 companies, 16 had not yet published their first accounts and 14 of these were in liquidation. Of the remaining 36 companies, only five earned profits, which totalled less than £48,000, as compared with the prospectus estimates of over £214,000. The remaining 31 companies whose accounts were available suffered losses aggregating £690,000, as compared with prospectus profits estimated at £3,178,000. Of the whole 58 companies only one had paid a dividend, and 27 were already in liquidation, 14 under compulsory orders, in which connection the scathing comments of the Official Receiver were not without interest. Further, it would appear that at least 16 of the remaining companies were in serious difficulties owing to losses from divers causes and, in nine cases, from the defaults of underwriters. Mr. Morgan's final estimate was that 95 per cent. of the capital of 58 companies had been lost. Somebody, of course, ought to be proportionately the gainer, but rarely is he the inventor of the process or the shareholder who finances it.

It is interesting to have the opinion of so experienced an authority that, in the matter of public finance, no further commitments for social services and public assistance should be incurred, and in particular that the Unemployment Insurance Scheme should be made to conform actuarially and financially to the principles of insurance and so avoid increasing the debt of the fund at the rate of two millions sterling a month.

Two Score and Ten

THERE is nothing surprising in the fact that the hustlers of the United States should have ruthlessly reduced the standard of the Psalmist from Three to Two Score Years and Ten, as the limit, at least, of useful working days. This, it may be recalled, was in defiance of Mr. Ford's dictum that if all men of fifty years and over were removed from industry there would be a deficiency of seasoned leadership and men of tried judgment to carry on successfuly. It is interesting, in that land of young people, where everyone, almost from his cradle, contemplates abandoning business for his yacht or country house at about 50 or earlier, to find the principal journal of the American Chemical Society putting in a good word for the more elderly. "If," it confesses, "we were directing a large research unit, there are several men who are not only two score and ten, but three score and ten, whom we should be glad to have about for the benefit of their experience, seasoned judgment, knowledge of the literature and patents, and because of their wide acquaintanceship. Some of these older men have remarkable memories of the things they have read, of the men with whom they have discussed their chemistry, and of events the details of which repeated without loss of time would serve to save errors in experimental methods, preliminary literature searching in some fields, and the mistake of approaching the wrong individual for expert assistance." This defence of the comparatively aged, the journal hastens to add, is no reflection on the younger generation, particularly those well-trained men and women who have enjoyed facilities beyond the dreams of their elders and who come to their problems equipped as no previous generation of equal native ability has been. They must carry the burden of the day, but it will be lighter, steps will be saved, and less midnight oil burned, if we avail ourselves of the wisdom afforded by our elders.

Book Received

CONSTITUTION ET THERMOCHIMIE DES MOLECULES. By Albert Gosselin and Marcel Gosselin. Paris: Les Presses Universitaires de France. Pp. 231.

RECENT ADVANCES IN PHYSICAL AND INORGANIC CHEMISTRY. By Dr. Alfred W. Stewart. London: Longmans, Green and Co. Pp. 388. 18s.

A CENTURY OF WOOD-PRESERVING. Edited by Sir Harold Boulton. London: Philip Allan and Co., Ltd. Pp. 150. 8s. 6d.

ALLEN'S COMMERCIAL ORGANIC ANALYSIS. Volume VIII. Edited by C. Ainsworth Mitchell. London: J. and A. Churchill. Pp. 761. 30s.

REPORT OF THE GOVERNMENT CHEMIST UPON THE WORK OF THE GOVERNMENT LABORATORY, for the year ending March 31, 1930. Pp. 45. 9d.

KELLY'S DIRECTORY OF THE CHEMICAL INDUSTRIES, 1930. London: Kelly's Directories, Ltd. Pp. 1,080. 30s.

The Calendar

Oct.		
14	Institution of Petroleum Technologists. 5.30 p.m.	House of the Royal Society of Arts, Adelphi, London.
15	Electroplaters' and Depositors' Technical Society: "Practical Difficulties in the Electro-deposition of Chromium." J. W. Cuthbertson. 8.15 p.m.	Northampton Polytechnic Institute, London.
15	Society of Glass Technology. 2 p.m.	Sheffield.
16	Biochemical Society of Birmingham University: Address by Dr. J. B. S. Haldane.	University, Birmingham.
16	Chemical Society. Ceremony of Unveiling the Perkin Plaque. 8 p.m.	Burlington House, Piccadilly, London.
17	Institute of Chemistry (South Wales Section): "Some Applications of the Electronic Theory in Organic Chemistry." E. E. Ayling. 6 p.m.	Thomas's Café, High Street, Swansea.
17	Society of Dyers and Colourists. Address by F. Scholefield. 7 p.m.	36, George Street, Manchester.
17	British Association of Chemists. London Section. Concert. 7.45 p.m.	Broad Street Station Restaurant, London.

Views of Manufacturers on Future of Dyestuffs Act

Important Memorandum Issued by A.B.C.M.

Following on the Report of the Dyestuffs Industry Development Committee and the Memorandum of the Colour Users' Association, the Association of British Chemical Manufacturers has now issued a Memorandum stating the views of the dyestuffs manufacturers on the operation of the Dyestuffs (Import Regulation) Act, and their suggestions for future policy. The following are extracts from this latest Memorandum, which, while based on the agreed facts set forth in the Report of the Development Committee, also takes into consideration the data for 1929 which have since become available.

BEFORE quoting from the general matter of the Memorandum, it will be well to give at the outset its recommendations and suggested modifications of the Dyestuffs Act, which are worded as follows:—

The dyemakers strongly urge the necessity for immediate steps to afford a further period of protection to the dyestuffs industry, and believe that in the main the methods and machinery of the present Act, which is now working very smoothly, should be retained.

The Act has enabled the industry to develop to an extent which renders unnecessary the continuance of any arbitrary protection in price such as is afforded by the Price Factor. It is suggested, therefore, that in any proposals for the future, prohibition of import shall only apply where a British maker is prepared to supply an equivalent product at an equal price. This would secure a continuance of the development of the dyestuffs industry in this country under conditions which would place no economic burden upon the consuming industries.

On the other hand, it would be necessary to set up safeguards which will protect the British maker against unfair prices quoted with the object of obstructing the development of the dyestuffs industry in this country. It is suggested that, in these circumstances, a Sub-Committee of the Licensing Committee, consisting of the three independent members, shall have power to inquire into the price quoted by the foreign manufacturer, and if they be satisfied that, in all the circumstances of the case, this price might be detrimental to the sound development of the industry in this country, then in such event the licence to import shall be refused.

It is also suggested that the development of products not hitherto made in this country would be materially assisted if the consuming interests could see their way to agree that when a new product is placed on the market, the price of such product shall be stabilised for a period of six months at the price ruling at that date for the corresponding imported product. This procedure, which is at present being followed, would afford to the British maker a short period of security during the early stages of manufacturing development.

Operation of the Act

Concerning the operation of the Act, it is stated, the main facts are generally agreed, namely, that after a certain amount of initial difficulty, it has latterly worked with increasing smoothness and expedition; that it has largely succeeded in achieving its main object, and that, as a consequence, we have a well-organised, technically efficient and virile industry.

Whilst the operation of the Act did impose a certain burden on the colour-consuming industries in the early stages, this burden has been progressively removed, and, to-day, the consumer of dyestuffs is not in "an unduly disadvantageous competitive position." The Act as administered has, in fact, been of decided benefit to the colour-consuming industries. Its administration having been for the most part under the control of an Advisory Licensing Committee, upon which the consumers of dyestuffs have outnumbered the manufacturers' representatives, it has often seemed that the primary object of the Act, namely, the protection of the dye manufacturing industry, was to some extent being overshadowed by the very natural desire to protect the consumer.

Output and Range

Prior to the protection of the industry, the weight of dyestuffs manufactured in Great Britain had already more than doubled as compared with 1913; moreover, whereas in 1913 almost the whole of the intermediates used were imported, in 1920 these were practically all made in this country. The present (1929) output of dyestuffs is over 55,500,000 lbs. per annum, which is over six times the weight produced in 1913. Of this quantity, 36,000,000 lbs. is consumed in the home market. This means that, on a weight basis, 90 per cent. of the total volume of the home consumption is derived from domestic sources, as compared with 20 per cent. in 1913. On a value basis the percentage is lower, being of the order of 74 per cent. This great increase of production is apparent in each of the main categories. The British dyestuffs industry also offers a more extensive range of colours than any other country outside Germany and Switzerland. In this connection it is instructive to note the large decrease in the number of types which it is necessary to import from abroad.

Official statistics for 1929 show that in that year approximately 1,960 brands of dyestuffs and intermediates were imported into this country. Whilst this list contains a number of items which are repetitions, varying only in strength, it includes many products which represent the later developments of the industry, notably vat dyestuffs, naphthol colours and calico-printing specialities. These are, in most cases, products of improved fastness and in steadily increasing demand, while their manufacture is attended with numerous difficulties. It is of fundamental importance that the manufacture of these products should be firmly established in this country, since the British textile industries, being largely export trades, require a greater variety and range of dyestuffs than those of any other country. This can be seen from the fact that, before the war, the number of brands imported from Germany alone amounted to approximately 8,850.

Comparison of Prices

The operations of the "price factor" system, which the Dyestuffs Advisory Licensing Committee imposed upon the industry, whereby prices of dyestuffs were established bearing a definite ratio to the pre-war prices, has often borne very harshly upon manufacturers.

It is true that complaints have often been made by consumers that they have been disadvantageously affected by the high prices of dyes in this country, but whatever substance there may have been in such complaints in the earlier years, there seems little ground for them now that the price factor originally fixed at three times pre-war, has by successive stages been reduced to 1·75. It must be borne in mind that this factor price is by no means the average price, but rather a maximum price, and is, therefore, unsuitable for purposes of comparison. It is calculated that 80 per cent. by weight of the British sales of home manufacture are at prices below this factor.

It is instructive to recall that, while the average price of dyestuffs in 1913 was 1s. per lb., and in 1920, during a period of unrestricted importation and before the commencement of the Act, 4s. 4d. per lb., the average price of British makers under the operation of the Act, had dropped to 1s. 6½d. per lb. in 1928 (the last year for which the detailed calculations have been made as yet), and further substantial reductions have since taken place.

It is computed that the general average price to-day of all dyestuffs used in this country, *i.e.*, including imported as well as domestic supplies, is 1s. 8½d. per lb. This compares with a pre-war general average price of 1s. and, in considering this comparison, it must not be overlooked that the make-up of the country's requirements to-day, compared with pre-war, is of a more expensive nature. In this connection, attention is drawn to the report of the Chairman of the Colour Users' Association in 1929, that as a result of investigations on the Continent, it was established "that the prices now ruling for dyestuffs in this country are not substantially higher than those paid by users on the Continent; in fact, in several Continental countries, the prices are much higher. In only two countries was it found that the average prices were lower than in Great Britain, namely, Germany and Holland."

The Colour Users' Association complain that, at the present time, the index figure for dyestuffs as against pre-war does not compare favourably with the general commodities price *level*, either on the Continent or in England—in other words,

that the price of dyestuffs is substantially higher than the consumers consider to be justified. In this connection it is interesting to note that the average price of dyestuffs exported from Germany in 1928 was 2s. 2d. per lb., as compared with 10½d. per lb. in 1913. This complaint, therefore, regarding the price of dyestuffs is world-wide and not confined to this country.

The service rendered to the British consumer by the British dyestuffs industry, as a competitive instrument for reducing prices alone, is abundantly evident from a study of the downward trend of prices of foreign dyestuffs consequent upon the appearance of British equivalents on the market. Cases can be quoted in which, in such circumstances, foreign products underwent very rapid, sometimes immediate, drops in price of 25 per cent. to 50 per cent. In most, if not all cases, the introduction of a British equivalent has resulted in persistent price reduction until a bare economic level has been reached.

Export Trade

In considering export figures it should be borne in mind that, since the war, many countries have taken steps to develop dye industries of their own, invariably under the protection of high tariff barriers. This has meant the restriction or disappearance of many old outlets, and as a result the intensity of competition in neutral markets has increased with the development of the new dye industries. The conquest and retention of foreign markets under these conditions is a matter of great difficulty, as it requires a force of highly trained technical salesmen experienced in the nature and use of all kinds of dyestuffs. The training of such men takes time, and since the first demands must necessarily be for technical men to develop manufacture and look after the home market, there has not yet been sufficient time to provide adequate numbers of these men to deal fully with the foreign markets. It is gratifying to note that while the British share of the export trade may not be large, it has steadily grown in the past three years, thus testifying to the efficiency of the home manufacture and the quality of the products. With the continuation of protection, there is every hope of progressive expansion in the export market.

Technical Efficiency

It can hardly be doubted that the operation of the Act, by causing incessant comparison of British products, with corresponding foreign products, both as regards quality and price, has contributed in a marked degree to the efficiency of the British manufacturers. It is generally agreed that British products have been very much improved both in purity and in standardisation during the period, and may now be regarded as fully equal to any foreign competitive products. The range of dyestuffs has been continually extended, and many important new products, the outcome of original research, have been placed on the market.

Technical efficiency is very largely dependent upon the employment of chemists of sound training and wide experience in the highly complicated technique of manufacture of organic chemical products. During the past ten years, a large number of chemists have passed on from Universities, and other educational institutions, to the various dyestuffs-manufacturing concerns in this country to apply and adapt their academic knowledge and training to the needs of the industry. Many of the works chemists, however, are as yet too young in experience fully to have explored all the intricacies of efficient production, even in connection with products the manufacture of which is old-established. From the point of view of developing and cultivating this experience, which will be of material assistance in the expansion of the export trade, the retention of the Act for a further period would be of invaluable service to the industry, which probably employs a larger proportion of technically trained men than any other manufacturing industry in the country.

The national importance of the dyestuffs industry as an outlet for British brains and a field of employment for trained chemists and chemical technologists cannot be too strongly stressed. Any restriction of this field would lead to a diminution in the numbers trained with a repercussive effect on the facilities for instruction and research in organic chemistry in this country. This would have an adverse influence, not only on other branches of the organic chemical industry, such as those engaged in the manufacture of medicinal products and other fine chemicals of vital national inportance, but on many other industries outside the purely chemical field, the progress of which requires the services of highly trained organic chemists for research and other purposes. It is not too much to say, that with the present trend of industrial development, a country's prosperity will in future depend more and more on an abundant supply of skilled chemists and technologists and on the maintenance of adequate facilities for instruction and research. It will be a national calamity if anything were to be done which would lead to the lamentable state of affairs that existed before the war, when this country was dependent on Germany for the training of its organic chemists.

British Part in Recent Discoveries

It is true that, as compared with pre-war periods, there has been comparatively little production of an original character in dyestuffs chemistry, but this remark applies not only to the British dyestuffs industry, but to the dyestuffs industry throughout the world; of the five outstanding developments in dyestuffs chemistry which have taken place during recent years, three are British discoveries covered by British patents. It can hardly be contended, therefore, that the British makers are not fully alive to the necessity of development in entirely new directions. Throughout the world, economic necessity has compelled the dyestuffs-making firms to devote a large part of their energies and resources to the improvement of existing processes, with a view to cheaper production. It may safely be stated that, in the absence of this development, dyestuffs prices would be considerably higher to-day than they actually are.

The administration of the Act has brought with it one or two indirect advantages which are not unimportant. First, the licensing routine, with the necessary careful examination of dyestuff samples and the knowledge of the multifarious purposes for which colours are required in industry, has furnished a mass of information never before available and of great assistance to the dyestuffs manufacturer, who has been kept informed of the exact requirements of the consumer and of the relative importance of the different directions in whcih research could be directed. Secondly, the protection which the manufacturer has enjoyed in the home market has also in practice applied to the Australian market, the Commonwealth Government having throughout applied the provisions of the Act to their country and excluded foreign dyestuffs for which British equivalents were available.

There can be little doubt that, in the event of the Dyestuffs Act being allowed to expire, the German dyestuffs manufacturers would make a great effort to recover as much as possible of the British market. They are shipping to this country only about 10 per cent. of the 1913 weight of dyes and intermediates (valued at about 40 per cent. of their pre-war imports).

Dangers from Abroad

The position is, of course, very different from that obtaining in 1920, when the last flooding of the country took place before the Dyestuffs Act stopped it. Thanks to the Act, the British competitive position is much stronger and prices on the average are already cut very low. In some directions, however, the Germans would be very formidable, especially having regard to the agreements which are known to exist between them and the Swiss firms which have an important dyestuffs factory in this country. Moreover, the strong weapon they hold in the form of patented products could be used as an inducement to consumers to place with them orders for other products.

But if the German menace is less, the risk of dumping from other countries, particularly the U.S.A., at price levels below cost, is much greater. The production of dyes in America is now about twice the output of this country and already, in a more or less spasmodic way, they have sold very large quantities of common dies on the Continent. In other markets, such as Canada, South America and China, they have a much larger share of the trade than has Great Britain, and their prices are often below any profit-making basis. There still remain the Swiss manufacturers, who have always enjoyed a large share of British tarde, and the French who have concluded an agreement with the Germans, and who are even now pressing their way forward in our market as far as the Dyestuffs Act permits. They, like the Italians, have much lower wage costs than ours, and would be eager to share in the trade of this country.

A further danger arises in view of the world-wide "Indanthrene" propaganda which the German I.G. has been developing for the past five years. The propaganda consists in supplying with the goods, coloured with certain selected products, an "Indanthrene" label which carries a definite guarantee. Although certain manufacturers in this country have registered their own private marks, and given guarantees, there is likely to be a foreign demand for British goods bearing the "Indanthrene" label and guarantee; and to meet this demand, British dyestuffs, even if chemically identical and better in value, could not be used. Such a danger might well be fatal to the manufacturer of vat or other fast dyes in this country if free importation of the German products were allowed before the propaganda had been in some way countered.

To these grave risks must be added the loss of the real indirect benefits accruing from the Act, and it is difficult to see the countervailing gain which would make such risks worth while. Why, then, run the risk of jeopardising the position attained during these ten years and the consummation of the work which it was the intention of the Act to achieve?

Need for Co-operation

In view of the further developments that are necessary to reduce the dependence of this country on foreign dyes, and thus attain the position which it was the object of the Act to achieve, the dyemakers consider that some measure of protection on the lines of the present Dyestuffs Act should be continued for a further period, and that the industry should have both the co-operation and the goodwill of the Colour Users' Association. It is therefore hoped that, just as in 1920, the Association, recognising a national need, assisted in the framing of the Act, and have loyally co-operated in the administration of it, they will again recognise that the need for co-operation still exists.

While the Colour Users admit that the cost to them has now been reduced to a negligible amount, the dyemakers are prepared to agree to concessions as indicated above, which would enable the Act to be renewed without imposing any financial burden on the consuming interests. The other main objection which the Colour Users advance, namely, that the Act interferes with their ability to obtain supplies of dyestuffs of proved quality and limits their access to developments and improvements in the world's market, may have carried weight in the early days before the machinery of the Act was in proper working order, but is hardly valid under the conditions which now exist by which much greater elasticity is allowed in the granting of licences for new materials. Thus it can be assured that under a continuation of the protection as indicated above, interference with the supplies can be reduced to a negligible extent. With these concessions, the last objections of the Colour Users should disappear.

Whilst the dyemakers are aware that one of the explicit provisions of the Dyestuffs Act of 1920 was that it would be limited to ten years and no longer, they consider that it would be folly to be bound fast by the intentions of Parliament at the time of the framing of the Act, without any consideration of the subsequent history of the industry or the state in which it now finds itself.

Report of the Government Chemist

Big Increase in Work of Laboratory

The Report of the Government Chemist (Sir Robert Robertson), on the work of the Government Laboratory for the year ended March 31, 1930, has just been published (H.M. Stationery Office, 9d. net). Notes from the report are published below.

THE total number of samples examined by the Government Laboratory, including those dealt with at the chemical stations, during the year was 545,422, as compared with 499,289 in the preceding year, an increase of 46,133. There has been an increase in the number of samples examined at Clement's Inn of 19,796, and increases at the Custom House branch and at the chemical stations of 13,320 and 13,017 respectively. The Hydrocarbon Oils Duty has involved the examination of over 10,000 samples for assessment of duty on importation, or drawback of duty on exportation. The samples consisted largely of articles in which hydrocarbon oil was one of the ingredients, and the quantity and character of the oil had to be determined. Many samples which are examined for oils may also contain other dutiable substances, such as alcohol, esters, and chemicals on the Key Industry List, which must be tested for and determined if present. The decrease in the number of samples tested for Hydrocarbon Oil Duty is doubtless due to the fact that it is not now found necessary to examine importations as fully as was the case when the duty was first imposed.

There has again been a large increase in the number of samples of tobacco examined in connection with payment of drawback on exportation, 90,861 compared with 74,415 in the previous year. This represents more than five-fold increase over the number of samples examined three years ago and has been met to some extent by re-arrangement of the work and provision of newer equipment.

Sugar and saccharin samples show an increase of over 4,000 over the previous year, due largely to an increase in the examination of imported sugar and composite goods. Other increases are those in wine, beer, tea, cocoa and chocolate. The total number of these samples was 183,803, compared with 165,324 a year ago.

Water and Pollution of Rivers

Twenty-seven samples of river water and effluents were examined. This work is carried out to ascertain the condition of fishing streams from the point of view of fish life and the effect of certain types of pollution on fish and fish food. Some of the samples were in connection with inquiries into the extent of the pollution of streams by effluents from beet sugar factories and artificial silk factories. The services of members of the staff were utilised in the survey of several rivers. The phenomenon of diurnal variation in the quantity of dissolved oxygen in rivers has been further studied and has been confirmed by observations extending over two years. The variation, while greatest in the spring and early summer, is traceable in some rivers at least throughout the year. In connection with the question of the pollution of fishing streams by road drainage, ten samples of proprietary road dressings and extracts from such dressings were examined for harmful or toxic bodies.

Safeguarding of Industries Act

Under the Safeguarding of Industries Act during the past year 12,218 samples were examined, in addition to 3 samples which were examined both for dyes and liability to Key Industry Duty. The object of the examination in most cases was to ascertain (*a*) whether the chemical was such as to come within the class of those liable to duty; or (*b*) whether, in the case of substances bearing trade names without indication as to their ingredients, such as medicinal preparations, the imported article contained any substances liable to duty, and, if so, in what proportions. One hundred and forty-two of the samples were examined in connection with claims for drawback of duties on exportation.

The duties on silk and artificial silk which came into force on July 1, 1925, have entailed the examination of 23,324 samples. Some were imported articles or fabrics or yarns concerning which it was desired to know whether real or artificial silk was present, and, if so, the proportions. In addition, in the case of silk, information was sought as to whether the natural gum had been removed from the fibre, since undischarged silk pays a lower rate of duty.

Six hundred and seventy-seven samples of wood naphtha, including other crude methyl alcohol and mineral naphtha, and 141 samples of pyridine and dyes intended for use in the manufacture of methylated spirits were examined. Except in one instance, the materials represented by the samples were approved as fit for methylating purposes. For the purpose of controlling methylated spirits or spirits other than

methylated spirits used free of duty in connection with manufacturing operations, 1,937 samples of special denaturants-specially denatured alcohol, recovered spirits, residues from stills and articles manufactured with industrial methylated spirits were examined.

Spirituous Preparations

During the year 18,793 samples of medicinal spirits, tinctures, perfumes, hair washes, dentifrices, liniments, extracts, infusions, etc., were examined as to their character and spirit strength in order to check the exporters' claims for drawback on the spirit used in their manufacture. In 220 cases the declared strength of the spirit was over-stated. Samples of these articles were also tested for the presence of methylated spirits, the use of which in such preparations precludes any right to drawback on exportation, and in nine samples methyl alcohol was found to be present. The samples were also specially examined for non-dutied alcohols or other substitutes for duty-paid spirit and it was found in three cases that drawback had been improperly claimed.

Wood spirit (methyl alcohol) is not liable to spirit duty on importation, unless purified so as to be potable, in which case it is dutiable as ordinary spirits. Of 70 samples of methyl alcohol five were found liable to duty on the ground of potability.

Fusel oil, whether imported or home produced, generally contains ethyl alcohol as an impurity, but duty is not charged on such ethyl alcohol unless upwards of 15 per cent. of proof spirit is present. This was the case in 29 of the 211 samples of imported fusel oil submitted for examination and, as an alternative to payment of duty, the importers were allowed by the Board of Customs and Excise to treat the fusel oil so as to reduce the proportion of proof spirit to the limit of 15 per cent. Sixty-two samples of fusel oil from British distilleries were examined. Of these, 14 were found to contain more than 15 per cent. of proof spirit.

Sugar, Glucose, and Saccharin

The number of samples of sugar and articles containing sugar or other sweetening matter examined for assessment of duty or drawback was 73,728, as compared with 68,935 in the preceding year. The number does not include those substances which contained spirit in addition to sugar.

In connection with the assessment of duty on glucose, 273 samples were examined, of which 158 were samples of glucose solution taken from charging vessels during the course of manufacture in order to check manufacturers' declarations; 771 samples were taken for assessment of drawback on exportation, and 46 samples of imported glucose and of glucose used in syrups made at sugar refineries were examined.

Saccharin has to be searched for in all preparations in which there is any probability of its occurrence; 214 samples of imported substances were specially examined with this object, and in a large proportion saccharin was present. Most of the samples contained some other dutiable ingredients such as sugar, spirit of chloroform, and this had also to be determined. Four hundred and ten samples of saccharin and articles containing saccharin were examined for the purpose of assessing the amount of drawback payable on exportation, and 58 samples of saccharin and of the materials used in its production were examined in connection with the assessment of duty on saccharin manufactured in this country.

3,409 samples of beet-pulp, beet juice, molasses and refined sugar were examined in connection with the manufacturing operations and for assessment of duty.

Preservatives Regulations

Under the Public Health (Preservatives, etc., in Food) Regulations, 1,429 samples of imported dairy produce and 889 other food samples were examined, including 135 from Scotland and 32 from Northern Ireland. Sixty-one samples were reported to the Board of Customs and Excise as contravening the Regulations. These included 29 samples containing sulphur dioxide and 14 samples containing benzoic acid, either contrary to the Regulations or in excess of the quantities permitted. Three contained both benzoic acid and sulphur dioxide, only one of these preservatives being permitted at the same time, and in each case one of the preservatives was present in excess of the permitted quantity.

The number of samples found to contain sulphur dioxide or benzoic acid tends to give an exaggerated idea of the use of these preservatives, because subsequent investigation showed that some of the articles containing sulphur dioxide in excess were destined for further refining, and in several instances a number of faulty samples of different articles were found in one consignment.

Two samples of tinned vegetables contained copper colouring matter, the use of which is prohibited by the Regulation. Hydrogen peroxide was found in four samples. Five samples of butter and one of margarine contained boron preservative, but the quantity found in each case was too small to indicate that boric acid had been added by the makers for preservative purposes. One sample was found to contain a considerable proportion of formic acid. Two samples consisting partly of cocoa were found to contain boric acid. The amount of boric acid in relation to the quantity of cocoa present did not, however, exceed the proportions reported in some recent investigations. Further inquiry into the possible employment of a boron preservative in the preparation abroad of the cocoa beans is being made.

Post Office

The total number of samples received from the Post Office was 2,249. The paper, pigments and gum used in the manufacture of postal, fiscal, national health and unemployment insurance stamps, postcards and embossed envelopes were systematically examined for quality and freedom from deleterious substances. As in previous years, the services of the Department were utilised in the investigation of cases of suspected fraudulent use of postage stamps. An ink stated to be extracted from a flower and to be fast to light was examined to see if it possessed any advantage as a substitute for the inks at present in use for the production of postage stamps.

Other samples examined included miscellaneous stores, such as canvas, creosote oil, white and red lead, soap, carbide, waterproofed clothing and fabrics, gold thread, postal ink, oils, sealing wax, cycle parts, tubes and covers. Investigations into the corrosive effects of certain fluids, soils and clinker on the lead sheathing of cables were continued, the trouble often being traced to electrolytic action. Two samples of dyed wearing apparel were examined in connection with suspected cases of dermatitis, but in neither case was there any evidence that the dye used was deleterious in this respect. An investigation into the cause of the premature decay of a telegraph pole showed that this was caused probably by the growth of fungi in particularly favourable circumstances. Samples of air and water were examined for the Medical Department.

Department of Scientific and Industrial Research

Two samples of wood preservatives were examined in connection with experiments made on the preservation of timber carried out by the Forest Products Research Laboratory. Seven samples of river water and coke-oven effluents were submitted in connection with the pollution of rivers.

One of the chemists of the Government Laboratory has been specially engaged part of the year in continuing the investigations for the Atmospheric Pollution Research Committee of the above Department, with the object of devising a standard method and apparatus for determining acidity of the air. These are now being tested at several stations. The main point investigated more recently was the confirmation of the statement made in an interim report that free sulphuric acid was not present in the atmosphere except during fog. Evidence has been obtained of the presence of traces of this acid in a proportion which does not exceed a small fraction of the total sulphurous acidity; neutral sulphates are also present in small quantities. Observations of the total acidity of the atmosphere have been continued.

Food and Drugs Acts

When proceedings are taken under the Food and Drugs (Adulteration) Act, 1928, the Justices before whom the case is heard must, on the request of either of the parties to the case, and may, if they think fit, without any such request, send to this laborarory for analysis the portion of the sample which has been retained for that purpose. Nineteen samples of food and one sample of drug were examined during the year. In 14 cases the results were in agreement, and in four cases in disagreement, with those put forward by the prosecution.

Recovery of Radium

The recovery of radium from decayed luminous paint has been continued, and over 200 milligrams of high-grade radium salt has been reconditioned and retubed for research purposes during the year.

Marking of Imported Fertilisers

A Merchandise Marks Act Application

An inquiry was held at the offices of the Board of Trade, at Westminster, on Monday, by the standing committee appointed by the Board under the provisions of Part II of the Merchandise Marks Act, 1926, into an application for an Order in Council requiring that bone meals and certain other fertilisers and feeding stuffs imported into this country should bear an indication of their foreign origin at the time of importation. The members of the standing committee are Sir Hubert Llewellyn Smith, K.C.B. (Chairman), Mr. G. N. Barnes and Mr. F. R. Davenport.

The products in respect of which the application was made were :—(*a*) Bone meal and bone flour, whether raw, degreased or degelatinised ; (*b*) hoof meal, horn meal and mixtures thereof ; (*c*) meat meal, meat and bone meal and carcase meal ; (*d*) dried blood, whether ground or unground.

The applicants so far as the first three items were concerned were the Federation of Bone Users and Allied Trades, Ltd., who claimed to comprise 90 per cent. of the raw bone users in this country. In regard to dried blood the applicants were Marsh and Baxter, Ltd., Robert Wilson and Sons, William Forrest and Sons (Paisley), Ltd., and Mr. William Riley. These firms claimed to be responsble for the production of the bulk of dried blood produced in this country. There was no opposition to the application.

Mr. R. Duncalfe (Chairman of the Federation of Bone Users and Allied Trades, Ltd.) presented the facts to the Committee, and said the products were used in every case either as a cattle food or a fertiliser. For cattle food purposes they were used because of either their protein content or mineral content to supplement the mineral content of the animals' ration ; they were used as fertilisers because of their content of nitrogen and phosphates for practically all crops. They were used, therefore, by farmers, poultry keepers, pig feeders, fruit growers, etc. In addition, they were sold to other manufacturers in the United Kingdom, as, for instance, the manufacturers of complete compound fertilisers or of complete feeding stuffs for animals, such as a complete pig meal. It was asked that the imported products should bear an indication of origin at the time of importation into this country and not merely at the time of sale, so that the manufacturer of compounds, as well as the farming consumer, should know that he was buying foreign.

The Chairman said the law provided that a marking Order made under the Merchandise Marks Act would not apply to blends or mixtures unless express provision were made, but apparently the inclination of the applicants was that an express provision did not matter. In any case he asked that they should think the matter over.

Increased Importation

Mr. Duncalfe, in emphasising the importance of the industry in this country, said that the members of the Federation of Bone Users and Allied Trades employed, in normal times, approximately 10,000 people, scattered among about 50 different works, but not all these people would be engaged in the manufacture of the products to which the application related ; the number employed in the production of these articles, however, was substantial. The production amounted to about 75,000 tons per annum, having a value of over half a million pounds sterling. Importation had increased during the last two or three years, and during that period there had been more competition from abroad than had been experienced for many years previously. The applicants would be quite satisfied to exclude from the provisions of the marking Order any sales of quantities less than 1 cwt. He believed that the products were not imported into this country in bags containing less than 1 cwt., so that all the bags in which the products were imported would have to be marked.

The Chairman asked whether there was a difference as between the prices of the British and the foreign products, sufficient to indicate which was foreign and which was British.

Mr. Duncalfe expressed the view that the foreign material was bought sometimes by merchants because it was offered to them at lower prices than the British, but that there was no differentiation in prices to the consumer which would enable him to distinguish.

Mr. Harold Ryden (Chairman of the Association of Feeding Meat Meal and Meat and Bone Meal Manufacturers) corroborated Mr. Duncalfe's evidence, and emphasised strongly the desirability of providing that the bags should be marked when imported.

Questioned by the Chairman as to the suggestion that packages containing less than 1 cwt. should be exempt from the marking requirements, he said that he personally would prefer to exempt only quantities of less than 56 lb.

Mr. F. W. Jackson (Messrs. Marsh and Baxter, Ltd.) also accepted Mr. Duncalfe's evidence as being applicable to the dried blood trade.

Recent Research on Colloids

Address by Dr. Ernst Hauser

At the Institution of Civil Engineers, Great George Street, London, on Monday, the London Section of the Society of Chemical Industry and the Chemical Engineering Group held a joint meeting, at which a lecture on " Recent Results in Structure Research of Colloids in Science and Industry " was delivered by Dr. Ernst Hauser, of Frankfort. Dr. G. T. Morgan, F.R.S. (Chairman of the London Section), presided, and mentioned that Dr. Hauser is the Head of the Colloid Laboratory of the Metallgesellschaft of Frankfort.

Dr. Hauser, in the course of a lecture which he delivered in excellent English, reviewed the work that has been done by leading investigators in connection with colloids, and expressed the view that the whole field had been absolutely covered so far as principles were concerned, using our present methods, and particularly X-ray research which, however, by means of improved apparatus and methods would be of increasing value in assisting to fill in the gaps which still required to be investigated. In that way we should be able to obtain a still deeper insight into the question of the study of matter in general. Whilst we had been able to study gases and solids in this way, liquids had not received the same attention, and it was therefore necessary to devise ways and means of studying whether a liquid had a structural orientation, and, if so, under what conditions. Dr. Hauser then outlined experimental work which he is carrying out, by which he is able very largely to bring about a sol-gel transformation and vice versa almost at will, and he claimed that all liquids in nature have a definite structural orientation.

The Texatropic Phenomenon

The transformation effect he called the texatropic phenomenon, and he pointed out the possiblities of its application in such industries as the ceramic, rubber, ore flotation and soap industries. This phenomenon, he said, had been applied to some extent in the ceramic industry since the days of the Egyptians, although without any definite knowledge, and it had proved practicable in casting processes in that industry, material being kept liquid at will until it was run into a mould, when it became solid. In the same way, the phenomenon had been applied with advantage by a few firms in the rubber industry in bringing rubber back to what was known as the " nervy " condition quickly. The phenomenon, if studied more thoroughly, opened up new aspects in every branch of natural science. He expressed a desire to help in the discussion of this matter. Many chemists must have come across this texatropic phenomenon in the course of their work without attaching very much importance to it at the time.

Sir Robert Robertson, F.R.S., said he had noticed the phenomenon in connection with nitro-cellulose, but had never been able to produce it at will. When dissolving nitro-cellulose of high nitrogen content in acetone he had seen fairly large irridescent beads, but on shaking they had been reduced to solution, as Dr. Hauser had shown in his experiments, but he had never been able to reproduce the effect.

Dr. Hauser said he had been trying to interest colleagues in various branches of science in the subject of his lecture but so far without a great deal of success. He also had heard that nitro-cellulose sometimes exhibits this texatropic effect, but personally he had not had time to study it and could only hope that this lecture would induce others to take the matter up because he believed the effect could be made of great industrial importance. Cellulose acetate, he understood, also exhibits the same phenomenon and here the artificial silk industry could make use of it.

Sir John Cass Technical Institute

Inauguration of New Session

SIR JOHN GILBERT, Chairman of the Education Committee of the London County Council, delivered the inaugural address at the opening of the 1930-31 session of the Sir John Cass Technical Institute, Aldgate, London, on Wednesday evening, and paid a warm tribute to the part which the Institute is playing in technical education in London.

The Rev. J. F. Marr, Chairman of the Governing Body, was in the chair, and in his statement on the work of the Institute, he said that twenty-nine years ago they were full of hope that the Institute would make for itself a name as a centre of scientific and technical education in the Metropolis; today it ranked with the foremost Polytechnics, and in addition, by the character of its advanced and post-graduate work, might be said to take its place with the schools of the University of London. Last session a total of 26 students were successful at the post-matriculation University examinations. These included 11 B.Sc. degrees with Honours, three Pass degrees and one B.Sc. (Engineering) Metallurgy degree, and in particular a Ph.D. degree and three M.Sc. degrees obtained by students in the Departments of Chemistry. An Honours degree in Mathematics had been gained for the first time by a student in the Department of Physics and Mathematics. The records showed that the total number of students who have graduated from the Institute during the eleven post-war sessions is 142, and, in addition, that 31 post-graduate degrees have been obtained, including five Ph.D. and two D.Sc. degrees. In 1929-30, the total number of registered internal students of London University was 171 as compared with 142 the previous session.

Former Students in Technical Posts Abroad

The name of the Institute was honoured far beyoud the British Isles, and this was attributable to the fact that past students now held important technical posts in other countries, and, further, that 22 investigations were completed and published during the past session, thus bringing the total number of original contributions published from the Institute at home and abroad to 260. Their position in the realms of education and the outstanding successes of their students, were the results of continued effort on the part of a highly qualified and very efficient staff combined with a large measure of concentration and self-sacrifice on the part of the students. It had been apparent for several years that further accommodation would have to be provided, particularly for the science departments and for the adequate development of the social life of the students. This position had been created by the increase in the volume of work which has been more than trebled since the session 1919-20. He had much pleasure in announcing that definite steps had been taken to meet the present need and to provide in some measure for future requirements. The Governors had acquired the long Corporation of London lease of property immediately to the north of the building, and on this site it was proposed to erect a new wing which would include lecture rooms and laboratories.

The Institute had recently suffered very severe losses by the deaths of members of the Governing Body, among them Sir Frederick Black, whose association with the Institute's work dated from 1921, when he became a member of the Consultative Committee on Petroleum Technology. In January, 1924, he was elected a member of the Governing Body as a representative of the London County Council, and two years later he was appointed Vice-chairman in succession to Sir Richard Davies.

Consultative Committees

Hearty congratulations were offered to Dr. Harden, who was lecturer in Micro-Biology at the Institute for 22 years, on the honour conferred upon him by the award of a Nobel Prize for Chemistry.

Four Consultative Committees were now associated with the activities of the Institute, and advised the Governors on the curriculum and organisation of the work provided for those in the Fermentation Industries, the Retail Management of Fermented Beverages, the Petroleum Industry and the Fuel Industries. The Committee on Fuel Technology, of which Dr. C. H. Lander, Director of Fuel Research Board of the Department of Scientific and Industrial Research, is chairman, was formed during the session and has rendered very valuable service. All courses in existence last year are to be continued, and during the coming session further facilities for study are being provided by the addition of courses, among others, on advanced gas manufacture and a laboratory course on micro-chemical analysis. Provision has also been made for part-time day courses in practical assaying, metallurgy of engineering metals and alloys, and elementary metallography and pyrometry.

Society of Public Analysts

Scientific Meeting and Elections

AN ordinary meeting of the Society of Public Analysts was held at the Chemical Society's Rooms, Burlington House, London, on Wednesday, October 1, the president, Dr. J. T. Dunn, being in the chair.

Certificates were read for the first time in favour of Leonard Balmforth, B.Sc., F.I.C.; Reginald Joseph Cole, B.Sc.; Violet Dorothy Dudman, B.Sc., A.I.C.; Frank George Edmed, O.B.E., B.Sc., A.R.C.Sc., F.I.C.; Roy Gardner, D.Sc., F.I.C.; William Victor Griffiths, B.Sc., A.I.C.; Daoud Younis Haddad, B.Pharm.; Percy George Terry Hand, F.I.C.; Magnus Herd, B.Sc., A.R.T.C., F.I.C.; Gilbert Underwood Houghton, B.Sc., A.I.C.; Archibald Robert Jamieson, B.Sc., F.I.C.; William Jefferys Lesley, M.Sc., Ph.D., A.I.C.; Allison Reginald Murray MacLean, B.A., M.Sc., Ph.D.; Frederick Henry Newington, F.I.C.; Colin Paterson, B.Sc., A.I.C. Certificates were read for the second time in favour of John Herbert Bushill, M.Sc., A.I.C.; Edward Quentin Laws, B.Sc., A.I.C.; and Hubert Taylor, B.Sc., A.I.C.

The following were elected ordinary members of the Society: Lionel Stuart Davis; Arthur Smith, B.Sc., A.I.C.; and Snow Blagburn Tallantyre, B.Sc., A.R.C.Sc., F.I.C.; and Dr. G. C. Clayton, F.I.C., was elected an honorary member.

A paper on "The Composition of Rye Oil," by J. W. Croxford, A.I.C. (representing work done under the Analytical Investigation Scheme), was read and discussed. It was stated that two samples of rye, a sample of Ryvita crispbread, and a sample of rye flour, extracted by means of petroleum, yielded about 2 per cent. of oil. It was semi-solid, contained from 8 to 10 per cent. of unsaponifiable matter, had chemical characteristics similar to those of maize oil, and behaved like a semi-drying oil. Biological tests made by Professor Drummond have shown that rye oil has little, if any, vitaminic activity.

"The Determination of Unsaponified Oil in Soap or Fatty Acids" was the subject of a paper by G. E. Lester Smith, M.Sc., A.I.C. A description was given of modifications of the "emulsion test," in which the presence of oil in fatty acid is indicated by the turbidity of a solution of the ammonium soap in dilute alcohol. As little as 0·05 per cent. of oil can be detected by the modified test, which is rapid and as sensitive as any other available. The test may be made quantitative by a determination of the volume of water required to produce incipient turbidity in an alcoholic solution of the ammonium soap under standard conditions.

A third paper was entitled "Scientific Evidence Relating to Firearms, with Special Reference to a Recent Murder Trial," by G. W. Baker, F.I.C., and was read and demonstrated by Mr. G. H. Perry, B.Sc., F.I.C., the War Department Chemist.

Booklet of Imperial Chemical Industries' Products

IMPERIAL CHEMICAL INDUSTRIES, LTD., have just issued a new edition of their invaluable booklet listing the wide range of I.C.I. products. The same divisions are maintained, dealing in turn with the constituent companies of I.C.I., the various sales organisations, explosives and ammunition products, dyestuffs and intermediates, non-ferrous metal products, engineering products, fertilisers, industrial nitrocellulose and allied products, and a classified list of trade names, but there has been some revision. The dyestuffs list has been lengthened, and the trade names list rearranged according to products. Free copies may be obtained on application to the Publicity Department, Imperial Chemical Industries, Ltd., Imperial Chemical House, London, S.W.1, quoting Reference Number C.A.5.

From Week to Week

MR. P. F. R. VENABLES, formerly of Liverpool University, has been appointed Lecturer in Chemistry and Technology to the College of Arts at Leicester.

THE TOTAL of the Castleford Explosion Relief Fund now amounts to £12,450, including £3,496 from the Lord Mayor of Leeds fund, which was recently paid over.

MR. D. W. JOHNSTONE, formerly a chemist with the Metallic Oxide Co., has been promoted Assistant General Freight Agent of the Canadian Pacific Railway Company.

SOME CHEMICALS under test in the research department at Woolwich Arsenal exploded on Monday afternoon and caused a small fire which was quickly extinguished. A workman was slightly burned by the explosion.

THE INSTITUTE OF FUEL is holding its two-day conference on Wednesday and Thursday, October 22 and 23, at the Incorporated Accountants Hall, Victoria Embankment, London, and not at the Institution of Electrical Engineers, as previously arranged.

THE REDUCTION in the price of motor benzol as from September 23 applies, of course, to all classes of commercial benzol, and the price of 90% benzol is now 1s. 5d. to 1s. 6d. per gallon. This reduction was not recorded in our list of prices of chemical products in our last two issues.

SIR HAROLD HARTLEY, vice-president and director of scientific research to the London, Midland and Scottish Railway, returned to England on Tuesday from his recent tour in the United States, where he has been in charge of an L.M.S. delegation of technical experts studying American railroad methods.

A NET LOSS OF £15,756 for the year ended June last was referred to by Lieut.-Col. G. Bridges, chairman, at a meeting of the shareholders of Splintex Safety Glass, Ltd., in London last week, and was attributed to the world-wide depression in trade. The directors were convinced, he added, that the time was not far distant when the use of safety glass in private and commercial vehicles would be universal.

A TRAIN equipped by the Canadian Department of Agriculture and run in co-operation with the Canadian National Railways has during the past three weeks been making a tour in the Province of Quebec demonstrating to farmers the importance of giving their soil more fertilisers and making freer use of lime. A laboratory was provided on the train, where farmers could have their soils analysed and receive advice as to the most suitable fertiliser.

THE WOOLLEY LABORATORIES at Manchester University for the study of pharmaceutical chemistry are to be ready for formal opening on October 22. They are regarded as the finest of their kind in the country and are a memorial to three distinguished members of the Woolley family for which James Woolley, Sons and Co., the manufacturing chemists and living members of that family, have subscribed. The equipment, almost entirely operated by electricity, includes a laboratory for experimental manufacture, a research room, and two larger rooms for quantitative pharmaceutical chemistry.

A JOINT MEETING of local scientific societies was held in Manchester on Friday, October 3, when a paper was read by Mr. B. D. Parritt, the director of the Research Association of the British Rubber Manufacturers, on "Some Aspects of Standardisation." A keen discussion followed, the society's represented including the Institution of the Rubber Industry, the Society of Chemical Industry, the Institute of Chemistry, the British Association of Chemists, and the Association of Scientific Workers. The chairman of the district section of the last-named body, Captain F. J. S. Gray, was in the chair.

PROCEEDINGS were taken in the Marine and Commercial Court at Copenhagen on Wednesday by the Danish firm, Fabriken Fiducia, against the British Enka Artificial Silk Co., which had also registered the trade mark "Fiducia" in Denmark. The director of the Danish patent and trade mark service gave evidence in favour of Enka, on the ground that the name "Fiducia" was not invented by the Danish firm. The court decided, however, that, as the word was an essential part of the Danish concern's name, the English firm must cancel its registration in Denmark and pay costs of 100 kroner (about £5 10s.).

THE BUILDING of the new chemical engineering laboratory at University College, London, has now been begun, and it is expected that the work will be completed by the end of May next.

THE POLISH-BELGIAN CHEMICAL CO., which is linked with both French and Belgian chemical interests, has recently purchased a large site in the city of Torun for the construction of a new plant to produce sulphuric acid, superphosphates and by-product fluorides.

CHANGE OF ADDRESS.—As from October 3, the address of the Bristol office of Metropolitan-Vickers Electrical Co., Ltd., has been 22, Victoria Street. Telephone No. 6860/1. Telegraphic address, "Multiphase, Bristol." The Cosmos lamp depot is at the same address.

A NEW FACTORY for the production of sulphuric acid as a by-product in the manufacture of coke is being built by the Kokswerke und Chemische Fabriken, A.G., according to a report from Breslau. It will have a capacity of 24,000 metric tons per annum and will be the first factory of this kind in Silesia.

THE MEETING of British Tintex and Dye Products, Ltd., requisitioned by the shareholders' committee was held on Monday, when the special resolution to wind up the company was defeated, the figures being: Against the special resolution, 201,717; for the special resolution, 172,740; majority 28,977.

THE NEW ARGENTINE GOVERNMENT, it is announced in a cable received by the London office of the British Empire Trade Exhibition, Buenos Aires, 1931, have consented to issue an official decree giving protection to all patents, trade marks, etc., unregistered in the Argentine, for a period of six months and covering the duration of the Exhibition.

THE RADIUM COMMISSION issued its first annual report on Thursday, and states that with regard to outside demands for radium, insufficiency of supply is a sufficient answer, but even if an unlimited stock had been available, an indiscriminate, or even a wider distribution of national radium would be undesirable in the present state of knowledge of radio-therapy.

AN INQUEST was held at Liverpool last week into the death of Arthur Ernest Malpas, consulting engineer to the United Alkali Co. and later Imperial Chemical Industries, Ltd., who was found dead from gas poisoning at his home. Evidence was given by Sir Max Muspratt, who stated that the company's five-year agreement with Malpas came to an end a few weeks ago. His duties as consulting engineer were purely nominal—in fact, he was never called upon. A verdict of "Suicide with no evidence to show the state of mind" was recorded.

IN HIS PRESIDENTIAL ADDRESS at the meeting of the British Association of Refrigeration on Thursday, October 2, Sir William B. Hardy declared that a nation might lead in science and yet fail to lead in industry. The great achievements of British science had failed in the past to help British industry as they could and should, because of the indifference of industry to science. For the last twelve years the State had been trying to remedy this by endeavouring to enforce and keep alive the lessons of the war. But it was not the scientific awareness of the State which is wanted, but that of industry.

THE LIST to be dealt with by the appeal judges during the new law sittings which begin on Monday next include an appeal by Mr. Ernest Hyslop Bell, of Harrogate, and Mr. Walter E. Snelling, of Putney Heath, respectively former chairman and vice-chairman of the Niger Company, Ltd., against a verdict and judgment given against them holding them liable to refund £50,000 to Lever Brothers, Ltd., and the Niger Co. They had received this sum as compensation for loss of office when the Niger Company was amalgamated with the African and Eastern Trade Corporation. It was alleged by the plaintiffs that defendants had appropriated to themselves contracts originally entered into on behalf of the Niger Company, or, alternatively, that they had engaged in buying and selling cocoa on their own account in breach of the terms of their contract of employment—charges which the defendants denied.

Obituary

MR. GEORGE HARRISON CARTER, a member of the firm of Carter and Sons (Sheffield), Ltd., manufacturing chemists, aged 50.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Accepted Specifications

333,098. Ammonium Chloride. J. I. Bronn, 12, Hessenallee, Charlottenburg, Berlin, and Concordia-Bergbau Akt.-Ges., Oberhausen, Rheinland, Germany. Application date, October 4, 1929.

Moist hydrochloric acid gas and moist ammonia gas are mixed above 120° C., when solid ammonium chloride separates from the steam. Higher temperatures can be used with higher pressures. The heat of the reaction and condensation may be used for superheating the reacting gases. The crystals of ammonium chloride tend to become cubic at temperatures above 170° C.

333,146. Dyes and Dye Intermediates. D. A. W. Fairweather, J. Thomas, and Scottish Dyes, Ltd., Earls Road, Grangemouth. Application date, January 25, 1929.

The disulphuric ester of 2-amino-anthrahydroquinone or derivatives having the 1-positon free, *e.g.*, chlor derivatives or their sodium salts, are treated with an oxidising agent such as potassium ferricyanide in an acid medium which is not acid to Congo red, *e.g.*, acetic acid. Solid esters of hydro-indanthrones are obtained by filtration, and soluble bodies giving green fluorescent solutions are isolated and may be coupled with β-naphthol. Examples are given of the treatment of sodium β-amino-anthrahydroquinone disulphuric ester, the liquor obtained by hydrolysis of the sodium salt of β-acetyl-amino-anthrahydroquinone disulphuric ester and the 3-chlor-β-amino-ester obtained as described in Specification No. 312,243 (See The Chemical Age, Vol. XX, p. 619).

333,165. Vat Dyes. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany, and J. Y. Johnson, London. Application date, April 22, 1929. Addition to 287,050 and 287,845.

These vat dyes are halogen-4 : 5 : 8 : 9-dibenzo-pyrene-3 : 10-quinones which differ from the dyestuffs of Specifications Nos. 287,050 and 287,845 (See The Chemical Age, Vol. XVIII, pp. 463 and 516), and dye cotton more reddish shades than the unhalogenated material. They are obtained by treatment with halogens or agents supplying halogens in the presence of organic solvents or diluents, or in aqueous suspension, and preferably in the presence of halogenating catalysts such as iron, copper, mercury, antimony, sulphur or iodine. The halogenation may be effected with free halogens, sulphuryl chloride, phosphorus oxy-chloride chlor-iodine or brom-iodine. Examples are given of the treatment with various halogenating agents to obtain a number of halogenated derivatives.

333,173. Dye Intermediates. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, May 2, 1929.

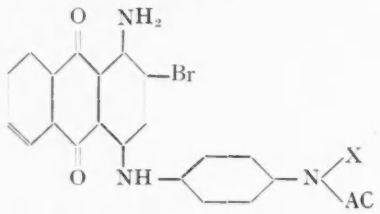
Fluorenone or its derivatives are treated with hydrazoic acid in the presence of a mineral acid and an inert solvent. Nitrogen is evolved and the products separated by pouring into water. Phenanthridones are obtained and are employed as intermediates for dyes and for pharmaceutical products. Examples are given of the action of hydrazoic acid on fluorenone, 2 : 7-dibromo-fluorenone, 2-nitro-fluorenone, 2-amino-fluorenone, fluorenone-4-carboxylic acid, 2-hydroxy-fluorenone, and 3-hydroxy-1 : 2-benzo-fluorenone, the latter being obtained by benzoylating α-methoxy-naphthalene in carbon disulphide in the presence of aluminium chloride, and effecting ring closure and saponification by fusion with aluminium chloride.

333,174. Vulcanisation Accelerators. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Applicalon date, May 2, 1929.

Condensation products of ammonia and unsaturated aldehydes, *e.g.*, crotonic aldehyde, acrolein or substituted acrolein, are employed as vulcanization accelerators.

333,188. Dyes. Chemische Fabrik vorms. Sandoz, Basle, Switzerland. International Convention date, November 27, 1928.

A derivative of the general formula



where X represents hydrogen, methyl or ethyl, and AC represents acyl, is treated with a sulphite, phenol and water under pressure at 130°–140° C. to obtain water-soluble anthraquinone dyestuffs. Complete substitution of bromine by a sulpho group occurs without any splitting off of the acyl group. Examples are given of the treatment of 1-amino-2-bromo-4-*p*-aminoacetanilido-anthraquinone, and 1-amino-2-bromo 4-*p*-amino-methyl-acetanilido-anthraquinone.

333,191. Dyes. W. G. Woodcock, E. G. Beckett, J. Thomas, and Scottish Dyes, Ltd., Earls Road, Grangemouth. Application date, January 31, 1929.

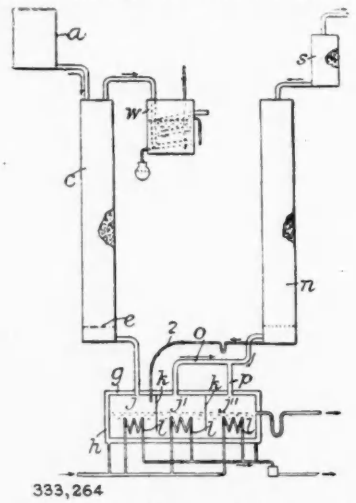
Anthraquinone vat dyes are purified by treating with a hypochlorite and boric acid, or an acid or acid salt, *e.g.*, a bicarbonate, of the same ionisation value in dilute solution. Examples are given of the purification of Caledon brown R and 2 : 7-diphenyl-(1 : 2 : 5 : 6-dithiazole-anthraquinone).

333,236. Dyes. J. S. Wilson, E. G. Beckett, J. Thomas and Scottish Dyes, Ltd., Earls Road, Grangemouth. Application date, February 2, 1929.

Dye preparations for acetate silk are obtained by mixing the dyes in the form of aqueous paste with alkali soaps of higher fatty acids and then drying at temperatures below 50° C. Examples are given of preparations obtained from Duranol blue CB, Duranol orange G, and Duranol red 2B.

333,264. Nitric Acid. Hercules Powder Co., 900, Market Street, Wilmington, Del., U.S.A. Assignees of J. L. Bennett, Wilmington, Del., U.S.A. International Convention date, November 26, 1928.

Aqueous nitric acid is mixed with a dehydrator, *e.g.*, sul-



333,264

phuric acid, phosphoric acid, or anhydrous sodium sulphate, and is partly denitrated by passing in counter-flow with

a mixture of steam and nitric acid vapour. The denitrated mixture is heated to obtain steam and nitric acid vapour, part of which is used to denitrate a further quantity, the remainder being treated to separate nitric acid.

The aqueous acid passes from the vessel *a* through a packed tower *c* to a boiler *g* which is heated by a steam jacket *h* and steam coils *l* in each of the compartments, *j*, *j'*, *j''*. Steam and nitric acid pass from the compartment *j* upwards through the column *c* and concentrated nitric acid is collected in the condenser *w*. Steam with less nitric acid vapour passes from the compartments *j'*, *j''* upwards through column *u* and reflux condenser *s*, and dilute nitric acid condensed in the column *u* passes through pipe 2 to the compartment *j*.

333,297. Purifying Coal Gas. Gewerkeschaft M. Stinnes, 136, Viehoferstrasse, Essen, Ruhr, Germany. International Convention date, February 6, 1928.

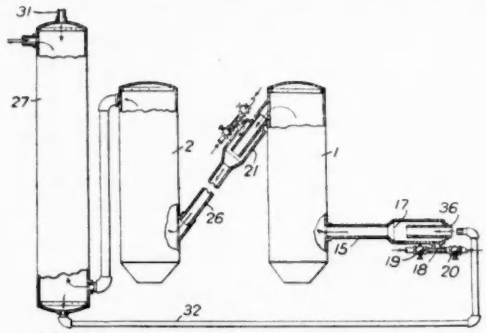
Coal gas is freed from naphthalene by compressing it to 1·5 atmospheres pressure and bubbling it at 30° C. through naphthalene oil, benzol washing oil, steam-volatile portions of washing oil, tar oil, or anthracene oil. The gas is then cooled to precipitate solvent vapour and naphthalene. The solvent may subsequently be used for washing after separation of naphthalene by cooling. Reference is directed by the Comptroller to Specification No. 304,135.

333,313. Aromatic Oxyaldehydes. J. D. Riedel-E. de Haen Akt.-Ges., 1, Riedelstrasse, Britz, Berlin. Application date, May 18, 1929. Addition to 285,451 and 290,649. (See The Chemical Age, Vol. XVIII, p. 368, and Vol. XIX, p. 58.)

The alkaline decomposition product of safrol is subjected to alkaline oxidation with nitro compounds, and the mixture of alkoxyvanillin and 4-alkoxymethyl ether of 1-propenyl-3:4-pryocatechin obtained is separated by fractional acidification. The unoxidised propenyl compound, which is precipitated first, is alkylated, treated with dilute acids to remove the alkoxymethyl group and the resulting isoeugenol or homologue oxidised to vanillin or its higher homologues. The alkoxyvanillin is subjected to acidylation and is treated with dilute acids and then with alkylating agents to obtain vanillin or its homologues, the acidyl group being removed by saponification. Examples are given.

333,335. Cracking Oils. H. D. Elkington, London. From Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij, 30, Carel van Bylandtlaan, The Hague. Application date, June 7, 1929.

Oil vapour is introduced at 36 and is cracked by contact with hot combustion gas obtained by introducing air and fuel through a conduit 19 to a burner 17. The products pass to



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an expansion chamber 1 and thence to a similar burner 21, where they are again cracked. The products pass to another combustion chamber 2 and finally to a chamber 27, where the crude oil is heated on passing through to pipe 32 and inlet 36.

333,349. Amines. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, June 28, 1929.

Mixtures of secondary and tertiary amines are treated with an amount of phthalic anhydride corresponding to the amount of secondary amine, and the phthalamic acid formed is extracted with alkali and converted into the secondary amine. Examples are given of the separation of mono- and di-ethylaniline, mono- and di-methylaniline, mono- and di-benzylaniline, ethyldiphenylamine and diphenylamine, hydroxyethyl-*p*-cresidine and dimethylaniline.

333,352. Naphthalene. Ges. für Teerverwertung, A. Spilker and G. Spilker, Meiderich, Duisburg, Germany. Application date, July 1, 1929.

Naphthalene is melted, washed with caustic soda solution, leached several times with water, and distilled, to purify it.

333,353. Cyanamides. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, July 1, 1929.

To obtain calcium cyanamide free from dust and non-caustic, it is mixed with solid ammonium nitrate, and the ammonia liberated is removed by heating the mixture to a point below 150° C. Solid phosphoric acid may be used in place of ammonium nitrate.

333,391. Indiarubber. Naugatuck Chemical Co., Elm Street, Naugatuck, Conn., U.S.A. (Assignees of E. Hazel, 12, Bank Street, New York.) International Convention date, October 5, 1928.

Rubber latex is treated with a compound of the general formula M-halogen-O, where M is hydrogen, an alkali or alkaline earth metal or an organic radical such as ethyl, amyl, or tertiary butyl. A permanent tackiness in the rubber is produced, unless the latex is strongly ammoniacal, when a glazed, non-tacky condition is produced. Increased stability, and a rapidly depositing latex are obtained. An example is given.

333,453. Hydrogenation of Naphthalene. J. Varga, 4, Gellért tér, Budapest. International Convention date, October 13, 1928.

Naphthalene is hydrogenated at a pressure above 100 atmospheres, and at a high temperature, in the presence of a compound of molybdenum or tungsten, the catalytic activity of which is increased by the presence of 1—10% of hydrogen sulphide. At a temperature between 400° C. and 500° C. a sudden absorption of heat occurs, and treatment above this point favours the production of benzene hydrocarbons, while below this point tetrahydronaphthalene and dekahydronaphthalene are obtained. The nature of the products is also varied by the partial pressure of the hydrogen.

333,477. Fertilisers. Hydro Nitro Soc. Anon., 8, Quai du Cheval Blanc, Geneva, Switzerland. International Convention date December 1, 1928.

Ammonium carbonate and phosphorus pentoxide are heated together in an autoclave to obtain a fertiliser consisting of urea and ammonium pyrophosphate and metaphosphate. Ammonia and carbon dioxide may be used in place of ammonium carbonate.

Note.—Abstracts of the following specifications, which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention: —312,283 (Naamlooze Vennootschap Chemische Fabrik Servo and M. D. Rozenbroek), relating to sulphonating higher fatty acids and fatty acid derivatives, see Vol XXI, p. 90; 312,916 (J. Mercier), relating to synthesis of hydrocarbon fuels and cracking and hydrogenation of heavy hydrocarbons, see Vol. XXI, p. 114; 315,312 (I.G. Farbenindustrie Akt.-Ges.), relating to condensation products from diolefines and hydrocarbons, see Vol XXI, p. 244; 315,397 (I.G. Farbenindustrie Akt.-Ges.), relating to glacial acetic acid from dilute acetic acid, see Vol XXI, p. 244; 318,618 (Selden Co.), relating to oxidation of acenaphthene, acenaphthalene and their substitution products, see Vol. XXI, p. 510.

Specifications Accepted with Date of Application

308,169–170. Esters, Production of. Canadian Electro Products Co., Ltd. March 17, 1928.

308,281. Bromine and iodine, Treatment of. Govett, Ltd. March 20, 1928.

310,871. Secondary aromatic amines, Manufacture of. Goodyear Tire and Rubber Co. May 2, 1928.

312,043. Catalytic process. E. I. Du Pont de Nemours and Co. May 18, 1928.

313,858. Zinc and other metals, Production of. L. Sturbelle. June 15, 1928.

314,527. Vat dyestuffs of the dithionaphthenylene-quinone series, Manufacture of. I.G. Farbenindustrie Akt.-Ges. June 29, 1928.

335,151. Electrolytic cells, Manufacture of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*). March 22, 1929.

335,161. Electro-deposition of chromium. E. V. Hayes-Gratze. June 13, 1929.

335,163. Charging powders into furnaces and other reaction chambers, Method of. F. B. Grant and Imperial Chemical Industries, Ltd. June 14, 1929.

335,175. Fertiliser salts which are capable of being stored, manufacture of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*). June 15, 1929.

335,199. Chromium compounds of azo dyestuffs forming metallic compounds, Manufacture of. A. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*). May 16, 1929.

335,185. Polymerisation products of unsaturated ketones, Manufacture of. I.G. Farbenindustrie Akt.-Ges. March 16, 1928.

335,215–7. Catalysts for destructive hydrogenation. H. W. Strong and Imperial Chemical Industries, Ltd. June 19, 1929.

335,216–8.—Destructive hydrogenation, Method of. H. W. Strong and Imperial Chemical Industries, Ltd. June 19, 1929.

335,223. Diesters of carboxylic acids, Production of. Canadian Electro Products Co., Ltd., F. W. Skirrow and G. O. Morrison. March 18, 1929. Addition to 308,169.

335,232. Dyestuff intermediates, Manufacture of. W. Smith, J. Primrose, J. Thomas, and Scottish Dyes, Ltd. April 15, 1929.

335,280. 2:3-butylene glycol from carbohydrates, Preparation of. T. H. Verhave, Sen. June 26, 1929. Addition to 315,263.

335,297. Sulphurised dyestuff, Manufacture of. C. B. Ellis. (*Chemical Works, formerly Sandoz*). July 6, 1929.

335,353. Aromatic hydrocarbons, Process of obtaining. A. S. Ramage. September 3, 1929.

335,371. Alkalising the waste liquors from the soda or sulphate pulp manufacture, Method of. E. L. Rinman. July 15, 1929.

335,391. Glycidic acids. Manufacture of. A. A. Kaufmann. October 8, 1929.

335,394. Desulphurisation of gases and vapours. Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij. October 23, 1928.

335,411. Catalytic gas reactions. Holzverkohlungs-Industrie Akt.-Ges. November 28, 1928.

335,421. Urea, Manufacture of. Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij. November 13, 1928.

335,453. Sintered alloys containing tungsten compounds. R. Walter. December 3, 1928.

335,492. Alkali phosphates, Method of producing. Metallges. Akt.-Ges. October 17, 1929.

335,501. Acid disodium pyrophosphate, Production of. Metallges. Akt.-Ges. May 17, 1929.

336,512. Condensation products from diolefines and hydrocarbons, Manufacture of. I.G. Farbenindustrie Akt.-Ges. July 5, 1929. Addition to 315,312.

335,513. Liquid products from coal or carbonaceous materials, Process for the manufacture of. H. D. Elkington. (*Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij*). May 31, 1929.

Applications for Patents

[In the case of applications for patents under the International Convention, the priority date (that is, the original application date abroad which the applicant desires shall be accorded to the patent) is given in brackets, with the name of the country of origin. Specifications of such applications are open to inspection at the Patent Office on the anniversary of the date given in brackets, whether or not they have been accepted.]

Boot's Pure Drug Co., Ltd., Pyman, F. L., and Levene, H. H. L. Alkyl ethers of alkaloids. 29,755. October 4.

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of artificial rubber-like masses. 29,319. September 30.

—— Manufacture of stable chloro rubber. 29,408. October 1.

—— Manufacture of azo dyestuffs. 29,649. October 3.

Carter, P. G., Imperial Chemical Industries, Ltd., and Thomson, R. F. Production of benzanthrone derivatives. 29,625. October 3.

Carughi, A., and Soc. Elettrica ed Elettrochimica del Caffaro. Manufacture of chloride of lime. 29,284. September 30. (Italy, November 25, 1929.)

Chemische Fabrik vorm. Sandoz. Preparation of anthraquinone dyestuffs. 29,664. October 3. (Germany, October 4, 1929.)

Coley, H. E. Obtaining explosive mixture for internal combustion engines. 29,383. October 1.

Frances, W., and McAulay, J. Treatment of hydrocarbons. 29,464. October 2. (August 21, 1929.)

—— Condensing hydrocarbons. 29,465. October 2. (June 5.)

Frischer, H. Nitric acid manufacture. 29,401. October 1. (Germany October 3, 1929.)

—— Recovery of sulphuric acid. 29,531. October 2. (Germany, October 5, 1929.)

Groves, W. W., and I.G. Farbenindustrie Akt.-Ges. Manufacture of sulphuric acid esters of leuco-*a*-aminoanthraquinones. 29,116. September 29.

—— Manufacture of sulphuric acid esters of leuco-aroylamino-anthraquinones. 29,117. September 29.

—— Dyestuffs. 29,756. October 4.

Hercules Powder Co. Method of recovering nitric acid. 29,169. September 29. (United States, October 8, 1929.)

I.G. Farbenindustrie Akt.-Ges and Johnson, J. Y. Destructive hydrogenation, etc. 29,096. September 29.

—— Thermal conversion of hydrocarbons. 29,097. September 29.

—— Manufacture of colour lakes. 29,098. September 29.

—— Manufacture of fertilisers. 29,509. October 2.

—— Recovery of high molecular alcohols. 29,510. October 2.

—— Apparatus for continuous treatment of solid substances under pressure. 29,734. October 4.

I.G. Farbenindustrie Akt.-Ges. Printing with indigoid vat dyestuffs, etc. 29,118. September 29. (Germany, February 15.)

—— Protective paper strips for photographic roll films. 29,120. September 29.—(Germany, December 16, 1929.)

—— Printing with indigoid vat dyestuffs. 29,288. September 30.

—— Manufacture of colloid reliefs. 29,399. October 1. (Germany, December 6, 1929.)

—— Manufacture of alkaline earth oxides. 29,407. October 1. (Germany, October 1, 1929.)

—— Manufacture of colloid reliefs. 29,518. October 2.

Imperial Chemical Industries, Ltd., and Wheeler, S. Treatment of hydrocarbons. 29,464. October 2. (August 21, 1929.)

Imperial Chemical Industries, Ltd. Condensing hydrocarbons. 29,465. October 2. (June 5.)

—— Impermeable cloth. 29,626. October 3. (United States, October 3, 1929.)

—— Pickling metals. 29,738. October 4. (United States, October 4, 1929.)

Kali-Forschungs-Anstalt Ges. Manure mixtures. 29,327. September 30. (Germany, October 23, 1929.)

—— Production of potassium monophosphate. 29,328. September 30. (Germany, October 25, 1929.)

Laing, B., and Nielsen, H. Apparatus for distillation of carbonaceous materials. 29,403. October 1.

Plant, J. H. G. Manufacture of aliphatic compounds. 29,548. October 2.

Resinous Products and Chemical Co. and Triggs, W. W. Production of acids and salts from petroleum hydrocarbons. 29,375. October 1.

Röhm and Haas Co. Electrolytic production of thiocyanide derivatives. 29,274. September 30. (United States, October 3, 1929.)

Silica Gel Corporation. Manufacture of tin oxide gels. 29,544. October 2. (United States, October 3, 1929.)

Pollution of the River Tees

A Complicated Problem

A MEETING of the River Tees Survey Consultative Committee was held on Friday, October 3, at Middlesbrough, to receive a report of the Government scientists who are investigating the river for pollution and its causes.

Dr. Calvert, of the Department of Scientific and Industrial Research, suggesting that the survey should be continued, said the problem of the Tees was turning out far more complicated than had been anticipated. He suggested that in view of the decision of the scientists to continue their investigations for a further period, local industrialists might be persuaded to contribute towards the heavy costs of the survey, which was being borne by the Government.

Alderman S. A. Sadler, managing director of the Middlesbrough chemical manufacturing firm of Sadler and Co., Ltd., asked how long the scientists would like to continue their investigations? How many years? The idea of a number of people was that the scientists were "digging themselves in for life."

Dr. Calvert replied that he did not know, but he did not contemplate more than three or four years.

Alderman Sadler declared that the real trouble was not industrial effluent, but a sewage effluent. The industrialists on the river were doing everything in their power to assist in keeping the river clean, and could prove conclusively that the effluents from industry were not stopping salmon. During the war, with the chemical industry at its height, the run of salmon was better than ever before.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID CHROMIC.—1s. 0⅝d. per lb. d/d U.K.

ACID HYDROCHLORIC.—Spot, 3s. 9d. to 6s. carboy d/d, according to purity, strength and locality.

ACID NITRIC, 80° Tw.—Spot, £20 to £25 per ton makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA (ANHYDROUS).—Spot, 11d. per lb., d/d in cylinders.

AMMONIUM BICHROMATE.—8d. per lb. d/d U.K.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages free.

BLEACHING POWDER, 35/37%.—Spot, £7 10s. per ton d/d station in casks, special terms for contracts.

BORAX, COMMERCIAL.—Crystals, £13 10s. per ton; granulated, £12 10s. per ton; powder, £14 per ton. (Packed in 1 cwt. bags. carriage paid any station in Great Britain. Prices quoted are for one ton lots and upwards).

CALCIUM CHLORIDE (SOLID), 70/75%.—Spot, £4 15s. to £5 5s. per ton d/d in drums.

CHROMIUM OXIDE.—9½d. and 10d. per lb. according to quantity d/d U.K.

CHROMETAN.—Crystals, 3¼d. per lb. Liquor, £18 10s. per ton d/d U.K.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 7d. to 1s. 11d. per gall. pyridinised industrial, 1s. 9d. to 2s. 1d. per gall.; mineralised, 2s. 8d. to 2s. 11d. per gall. 64 O.P., 1d. extra in all cases. Prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE CRYSTALS AND GRANULAR.—4¼d. per lb. nett d/d U.K., discount according to quantity; ground ½d. per lb. extra.

POTASSIUM CHLORATE.—3¾d. per lb., ex-wharf, London, in cwt. kegs.

POTASSIUM CHROMATE.—8d. per lb. d/d U.K.

SALAMMONIAC.—Firsts lump, spot, £42 10s. per ton d/d station in barrels. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE, UNGROUND.—Spot, £3 7s. 6d. per ton d/d station in bulk.

SODA ASH, 58° E.—Spot, £6 per ton, f.o.r. in bags, special terms for contracts.

SODA CAUSTIC, SOLID, 76/77°E.—Spot, £14 10s. per ton, d/d station.

SODA CRYSTALS.—Spot, £5 to £5 5s. per ton, d/d station or ex depot in 2-cwt. bags.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE, REFINED.—Spot, £10 10s. per ton d/d station in bags.

SODIUM BICHROMATE CRYSTALS.—3⅞d. per lb. nett d/d U.K., discount according to quantity. Anhydrous ¾d. per lb. extra.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.b. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM CHROMATE.—3¼d. per lb. d/d U.K.

SODIUM NITRITE.—Spot, £19 per ton, d/d station in drums.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SILICATE, 140° Tw.—Spot, £8 5s. per ton, d/d station returnable drums.

SODIUM SULPHATE (GLAUBER SALTS).—Spot, £4 2s. 6d. per ton, d/d address in bags.

SODIUM SULPHIDE SOLID, 60/62%.—Spot, £10 5s. per ton d/d station in drums. Crystals—Spot, £7 10s. per ton d/d station in casks.

SODIUM SULPHITE, PEA CRYSTALS.—Spot, £13 10s. per ton, d/d station in kegs. Commercial—Spot, £9 per ton, d/d station in bags.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6d. to 7½d. per lb. Crude 60's 1s. 4½d to 2s. per gall. August/December.

ACID CRESYLIC 99/100.—2s. 2d. to 2s. 3d. per gall. B.P., 5s. per gall. 97/99.—2s. 1d. to 2s. 2d. per gall. Refined, 2s. 7d. to 2s. 10d. per gall. Pale, 95%, 1s. 9d. to 1s. 10d. per gall. 98%, 1s. 11d. to 2s. Dark, 1s. 6d. to 1s. 7d.

ANTHRACENE.—A quality, 2d. to 2½d. per unit. 40%, £4 10s. per ton.

ANTHRACENE OIL, STRAINED, 1080/1090.—4¾d. to 5¼d. per gall. 1100, 5¼d. to 6d. per gall.; 1110, 6d. to 6½d. per gall. Unstrained (Prices only nominal).

BENZOLE.—Prices at works: Crude, 8d. to 9d. per gall.; Standard Motor, 1s. 3½d. to 1s. 4½d. per gall.; 90%, 1s. 5d. to 1s. 6d. per gall.; Pure, 1s. 8d. to 1s. 9d. per gall.

TOLUOLE.—90%, 1s. 9d. to 1s. 10d. per gall. Pure, 1s. 11d. to 2s. 2d. per gall.

XYLOL.—1s. 5d. to 1s. 10d. per gall. Pure, 1s. 8d. to 2s. 1d. per gall.

CREOSOTE.—Cresylic, 20/24%, 6¾d. to 7d. per gall.; Heavy, for Export, 6⅛d. to 6⅜d. per gall. Home, 4d. per gall. d/d. Middle oil, 4½d. to 5d. per gall. Standard specification, 3d. to 4d. per gall. Light gravity, 1½d. to 1¾d. per gall. ex works. Salty, 7½d. per gall.

NAPHTHA.—Crude, 8½d. to 8¾d. per gall. Solvent, 90/160, 1s. 2¼d. to 1s. 3d. per gall. Solvent, 95/160, 1s. 3¼d. to 1s. 6d. per gall. Solvent 90/190, 11d. to 1s. 2½d. per gall.

NAPHTHALENE, CRUDE.—Drained Creosote Salts, £3 to £4 per ton. Whizzed, £4 to £5 per ton. Hot-pressed, £8 per ton.

NAPHTHALENE.—Crystals, £10 per ton. Purified Crystals, £14 10s. per ton. Flaked, £11 per ton.

PITCH.—Medium soft, 46s. to 47s. 6d. per ton, f.o.b., according to district. Nominal.

PYRIDINE.—90/140, 3s. 6d. to 4s. per gall. 90/160, 3s. 6d. to 3s. 9d. per gall. 90/180, 1s. 9d. to 2s. 3d. per gall. Heavy prices only nominal.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:—

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID GAMMA.—Spot, 3s. 9d. per lb. 100% d/d buyer's works.

ACID H.—Spot, 2s. 3d. per lb. 100% d/d buyer's works.

ACID NAPHTHIONIC.—1s. 5d. per lb. 100% d/d buyer's works.

ACID NEVILLE AND WINTHER.—Spot, 2s. 7d. per lb. 100% d/d buyer's works.

ACID SULPHANILIC.—Spot, 8½d. per lb. 100% d/d buyer's works.

ANILINE OIL.—Spot, 8½d. per lb., drums extra, d/d buyer's works.

ANILINE SALTS.—Spot, 8½d. per lb. d/d buyer's works.

BENZALDEHYDE.—Spot, 1s. 8d. per lb., packages extra, d/d buyer's works.

BENZIDINE BASE.—Spot, 2s. 6d. per lb. 100% d/d buyer's works.

BENZOIC ACID.—Spot, 1s. 8½d. per lb. d/d buyer's works.

o-CRESOL 30/31° C.—£3 1s. 10d. per cwt., in 1 ton lots.

m-CRESOL 98/100%.—2s. 9d. per lb., in ton lots.

p-CRESOL 34·5° C.—1s. 9½d. per lb., in ton lots.

DICHLORANILINE.—1s. 10d. per lb. f.o.r. works.

DIMETHYLANILINE.—Spot, 1s. 8d. per lb., drums extra d/d buyer's works.

DINITROBENZENE.—8d. per lb.

DINITROCHLORBENZENE.—£74 per ton d/d.

DINITROTOLUENE.—48/50° C., 7½d. per lb.; 66/68° C., 9d. per lb., f.o.r. works.

DIPHENYLAMINE.—Spot, 1s. 8d. per lb. d/d buyer's works.

a-NAPHTHOL.—Spot, 1s. 11d. per lb. d/d buyer's works.

B-NAPHTHOL.—Spot, £65 per ton in 1 ton lots, d/d buyer's works.

a-NAPHTHYLAMINE.—Spot, 1s. per lb. d/d buyer's works.

B-NAPHTHYLAMINE.—Spot, 2s. 9d. per lb. d/d buyer's works.

o-NITRANILINE.—5s. 11d. per lb.

m-NITRANILINE.—Spot, 2s. 6d. per lb. d/d buyer's works.

p-NITRANILINE.—Spot, 1s. 8d. per lb. d/d buyer's works.

NITROBENZENE.—Spot, 6½d. per lb., 5-cwt. lots, drums extra, d/d buyer's works.

NITRONAPHTHALENE.—9d. per lb.

R. SALT.—Spot, 2s. per lb. 100% d/d buyer's works.

SODIUM NAPHTHIONATE.—Spot, 1s. 6½d. per lb. 100% d/d buyer's works.

o-TOLUIDINE.—Spot, 8d. per lb., drums extra, d/d buyer's works.

p-TOLUIDINE.—Spot, 1s. 9d. per lb. d/d buyer's works.

m-XYLIDINE ACETATE.—3s. 1d. per lb., ex works.

Wood Distillation Products

ACETATE OF LIME.—Brown, £8 to £8 5s. per ton. Grey, £14 to £15 per ton. Liquor, 9d. per gall.

ACETONE.—£73 per ton.

CHARCOAL.—£6 to £8 3s. per ton, according to grade and locality.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. per gall. 16° Tw.

WOOD CREOSOTE.—1s. 9d. per gall., unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. to 3s. 2d. per gall. Solvent, 4s. per gall.

WOOD TAR.—£4 5s. to £5 per ton.

BROWN SUGAR OF LEAD.—£37 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 2d. per lb., according to quality; Crimson, 1s. 3d. to 1s. 5d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 8d. to 1s. 10d. per lb.

BARYTES.—£5 10s. to £7 per ton, according to quality.

CADMIUM SULPHIDE.—4s. 6d. to 5s. per lb.
CARBON BISULPHIDE.—£26 to £28 per ton, according to quantity; drums extra.
CARBON BLACK.—3½d. to 4 1/16d. per lb., ex wharf.
CARBON TETRACHLORIDE.—£40 to £50 per ton, according to quantity. drums extra.
CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.
DIPHENYLGUANIDINE.—2s. 9d. per lb.
LITHOPONE, 30%.—£20 to £22 per ton.
SULPHUR.—£9 10s. to £13 per ton, according to quality.
SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.
SULPHUR PRECIP. B.P.—£55 to £60 per ton, according to quantity.
VERMILION, PALE OR DEEP.—6s. 6d.–7s. per lb.
ZINC SULPHIDE.—8d. to 11d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£37 per ton, for ½ to 1-ton lots, delivered, barrels free.
ACID, ACETYL SALICYLIC.—2s. 9d. to 2s. 11d. per lb., according to quantity.
ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., for synthetic product, according to quantity. Solely ex Gum, 1s. 3d. to 1s. 6d. per oz.; 50-oz. lots, 1s. 3d. per oz.
ACID, BORIC B.P.—Crystal, £31 per ton; powder, £32 per ton; For one-ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 5¾d. to 1s. 6½d. per lb., less 5%.
ACID, GALLIC.—2s. 11d. per lb. for pure crystal, in cwt. lots.
ACID, MOLYBDIC.—5s. 3d. per lb. in ½-cwt. lots. Packages extra. Special prices for quantities and contracts.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d.
ACID, SALICYLIC, B.P. PULV.—1s. 5d. to 1s. 8d. per lb. Technical.—1s. to 1s. 2d. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. per lb., less 5%.
AMIDOL.—7s. 6d. to 11s. 3d. per lb., according to quantity.
AMMONIUM BENZOATE.—3s. 9d. per lb.
AMMONIUM CARBONATE B.P.—£36 per ton. Powder, £39 per ton in 5-cwt. casks. Resublimated, 1s. per lb.
AMMONIUM MOLYBDATE.—4s. 9d. per lb. in ½-cwt. lots. Packages extra. Special prices for quantities and contracts.
ATROPHINE SULPHATE.—8s. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BISMUTH CARBONATE.—6s. 6d. per lb.
BISMUTH CITRATE.—6s. 9d. per lb.
BISMUTH SALICYLATE.—6s. 7d. per lb.
BISMUTH SUBNITRATE.—5s. 6d. per lb.
BISMUTH NITRATE.—Cryst. 4s. 4d. per lb.
BISMUTH OXIDE.—8s. 6d. per lb.
BISMUTH SUBCHLORIDE.—8s. per lb.
BISMUTH SUBGALLATE.—6s. 9d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W. Qts. 11d. per lb.
BORAX B.P.—Crystal, £21 10s. per ton; powder, £22 per ton; for one-ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
BROMIDES.—Ammonium, 1s. 9d. per lb.; potassium, 1s. 5½d. per lb.; granular, 1s. 5d. per lb.; sodium, 1s. 8d. per lb. Prices for 1-cwt. lots.
CAFFEIN, PURE.—7s. 6d. per lb.
CAFFEIN CITRAS.—5s. 9d. per lb.
CALCIUM LACTATE.—B.P., 1s. 1½d. to 1s. 6d. per lb., in 1-cwt. lots.
CAMPHOR.—Refined flowers, 3s. to 3s. 2d. per lb., according to quantity; also special contract prices.
CHLOROFORM.—2s. 4½d. to 2s. 7½d. per lb., according to quantity.
EMETINE HYDROCHLORIDE.—58s. 6d. per oz.
EMETINE BISMUTH IODIDE.—33s. per oz.
EPHEDRINE, PURE.—14s. 9d. to 15s. 6d. per oz.
EPHEDRINE HYDROCHLORIDE.—11s. 9d. to 12s. 6d. per oz.
EPHEDRINE SULPHATE.—11s. 9d. to 12s. 6d. per oz.
ERGOSTEROL.—2s. 6d. per gm.
ETHERS.—S.G. ·730—1s. to 1s. 1d. per lb., according to quantity; other gravities at proportionate prices.
FORMALDEHYDE, 40%.—37s. per cwt., in barrels, ex wharf.
GLUCOSE, MEDICINAL.—1s. 6d. to 2s. per lb. for large quantities.
HEXAMINE.—2s. 3d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—27s. 6d. per oz.
HYDRASTINE HYDROCHLORIDE.—85s. per oz. for small quantities.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 3s. per gall.
HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 2s. 11d. to 3s. 4d. per lb.; potassium, 3s. 2d. to 3s. 7d. per lb.; sodium, 3s. 1d. to 3s. 6d. per lb.; for 28-lb. lots.
IRON AMMONIUM CITRATE.—B.P., 2s. 5d. per lb., for 28-lb. lots. Green, 3s. 1d. per lb., list price. U.S.P., 3s. 3d. per lb. list price.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
IRON QUININE CITRATE.—B.P., 8¼d. to 8¾d. per oz., according to quantity.
MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light Commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb.
MENTHOL.—A.B.R. recrystallised B.P., 16s. per lb. net; Synthetic, 9s. 6d. to 11s. per lb.; Synthetic detached crystals, 9s. 6d. to 11s. per lb., according to quantity; Liquid (95%), 9s. per lb.
MERCURIALS B.P.—Up to 1-cwt. lots, Red Oxide, crystals, 8s. 4d. to 8s. 5d. per lb., levig., 7s. 10d. to 7s. 11d. per lb.; Corrosive Sublimate, Lump, 6s. 7d. to 6s. 8d. per lb., Powder, 6s. to 6s. 1d. per lb.; White Precipitate, Lump, 6s. 9d. to 6s. 10d. per lb., Powder, 6s. 10d. to 6s. 11d. per lb., Extra Fine, 6s. 11d. to 7s. per lb., Calomel, 7s. 2d. to 7s. 3d. per lb.; Yellow Oxide, 7s. 8d. to 7s. 9d. per lb.; Persulph, B.P.C., 6s. 11d. to 7s. per lb.; Sulph. nig., 6s. 8d. to 6s. 9d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 3d. to 1s. 5d. per lb.
PARALDEHYDE.—1s. 4d. per lb.
PHENACETIN.—3s. 9d. to 4s. 1d. per lb.
PHENOLPHTHALEIN.—5s. 11d. to 6s. 1½d. per lb.
PILOCARPINE NITRATE.—10s. 6d. per oz.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—89s. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P.C., 2s. 3d. per lb. in 28-lb. lots. Smaller quantities 1d. per lb. more.
POTASSIUM FERRICYANIDE.—1s. 7½d. per lb., in 125-lb. kegs.
POTASSIUM IODIDE.—16s. 8d. to 17s. 9d. per lb., according to quantity.
POTASSIUM METABISULPHITE.—6d. per lb., 1 cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.
QUININE SULPHATE.—1s. 8d. per oz. for 1,000-oz. lots.
QUINOPHAN.—B.P.C., 14s. 6d. to 16s. 6d. per lb. for cwt. lots.
SACCHARIN.—43s. 6d. per lb.
SALICIN.—18s. 6d. per lb.
SODIUM BARBITONUM.—8s. 6d. to 9s. per lb. for 1-cwt. lots.
SODIUM BENZOATE B.P.—1s. 9d. per lb. for 1-cwt. lots.
SODIUM CITRATE.—B.P.C. 1923, and U.S.P., 2s. 2d. to 2s. 5d. per lb. for 1-cwt. lots.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—95s. to 100s. per cwt. net. Crystals, 2s. 6d. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 10d. to 2s. 2d. per lb. Crystal, 1s. 11d. to 2s. 3d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £29 10s. per ton, according to quantity. Delivered U.K.
TARTAR EMETIC, B.P.—Crystal or powder, 1s. 9d. to 2s. per lb.
THYMOL.—Puriss, 8s. 3½d. to 9s. 2d. per lb., according to quantity. Natural, 12s. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—12s. per lb.
AMYL ACETATE.—2s. 6d. per lb.
AMYL BUTYRATE.—5s. per lb.
AMYL CINNAMIC ALDEHYDE.—10s. per lb.
AMYL SALICYLATE.—2s. 6d. per lb.
ANETHOL (M.P. 21/22° C.).—7s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—1s. 10d. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—1s. 10d. per lb.
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—13s. 3d. per lb.
COUMARIN.—12s. per lb.
CITRONELLOL.—8s. per lb.
CITRAL.—8s. per lb.
ETHYL CINNAMATE.—6s. 6d. per lb.
ETHYL PHTHALATE.—2s. 9d. per lb.
EUGENOL.—9s. 3d. per lb.
GERANIOL (PALMAROSA).—17s. per lb.
GERANIOL.—7s. 6d. to 10s. per lb.
HELIOTROPINE.—6s. per lb.
ISO EUGENOL.—11s. 6d. per lb.
LINALYL ACETATE, EX BOIS DE ROSE.—16s. per lb.
PHENYL ETHYL ACETATE.—11s. per lb.
PHENYL ETHYL ALCOHOL.—9s. per lb.
RHODINOL.—46s. per lb.
SAFROL.—1s. 10d. per lb.
TERPINEOL.—1s. 6d. per lb.
VANILLIN, EX CLOVE OIL.—13s. to 15s. per lb. Ex Guaiacol.—12s. to 13s. 9d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to the CHEMICAL AGE *by Messrs. R. W. Greeff & Co. Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, October 8, 1930.

THERE has been a fairly satisfactory demand during the current week for chemicals and prices in the main are steadier and in a few cases firmer than they have been for some time. Export inquiries are also increasing.

General Chemicals

ACETONE.—The market continues firm at £70 10s. to £80 per ton, according to quantity and there is a steady demand.

ACID ACETIC.—A regular trade is passing and prices are unchanged at the firm rates of £36 5s. to £38 5s. for technical 80% and £37 5s. to £39 5s. per ton for pure 80% edible according to quantity free delivered to buyer's works.

ACID CITRIC.—Rather inactive at about 1s. 6d. per lb. less 5%.

ACID LACTIC.—Business has been brighter and the market is firm at £41 to £42 per ton for the 50% by weight pale quality.

ACID OXALIC CRYSTALS.—More business is being booked at £30 7s. 6d. to £32 per ton, according to quantity.

ACID TARTARIC.—Prices continue easy at about 1s. to 1s. 0½d. per lb. less 5%, and there has been a little better demand.

SULPHATE OF ALUMINA.—The market is receiving a fairly large inquiry and price is firm at £8 to £8 15s. per ton for 17/18% iron free quality.

ARSENIC.—Prices have slightly eased to about £16 7s. 6d., free at rails at the mines.

CREAM OF TARTAR.—In fairly good demand at 87s. 6d. per cwt., ex warehouse London.

COPPER SULPHATE.—Unchanged at about £21 to £21 10s. per ton, free on rails London.

FORMALDEHYDE.—Steady at £32 per ton, ex wharf London, for 40% by volume with a fairly good demand.

LEAD ACETATE.—A steady trade is passing at £38 per ton for white and £37 per ton for brown, and prices are unchanged.

LEAD NITRATE.—In steady demand at £29 10s. to £30. per ton.

LITHOPONE.—Unchanged at £19 15s. to £23 per ton, according to grade and quantity and in fair demand.

CARBONATE OF POTASH.—Unchanged at £28 to £29 per ton for 96/98% arsenic, free quality.

PERMANGANATE OF POTASH NEEDLE CRYSTALS B.P.—In fairly good demad at 5½d. per lb.

PRUSSIATE OF POTASH.—Firm at £63 10s. to £65 10s. per ton and in good request.

BICHROMATE OF SODA.—In good request at 3⅜d. per lb., with usual discounts for contracts.

SODIUM HYPOSULPHITE.—Commercial quality, £8 10s.; photographic crystals, £14 15s. per ton.

SULPHIDE OF SODA.—In steady call mainly on contract account at £10 5s. to £11 5s. per ton for solid, and £11 5s. to £12 5s. per ton for broken, according to quantity, carriage paid.

TARTARIC EMETIC.—Steady at about 11d. per lb.

ZINC SULPHATE.—In quiet request at about £12 5s. per ton.

Coal Tar Products

There is no change to report regarding the condition of the coal tar product market. Prices remain unchanged, although inquiry is better.

MOTOR BENZOL.—Remains at about 1s. 5½d. to 1s. 6½d. per gallon, f.o.r.

SOLVENT NAPHTHA.—Quoted at about 1s. 2⅜d. to 1s. 3d. per gallon.

HEAVY NAPHTHA.—Unchanged at about 1s. 1d. per gallon, f.o.r.

CREOSOTE OIL.—Remains at 3d. to 3½d. per gallon f.o.r. in the North, and at 4d. to 4½d. per gallon in London.

CRESYLIC ACID.—Quoted at 1s. 8d. per gallon for the 98/100% quality, and at 1s. 6d. per gallon for the dark quality 95/97%.

NAPHTHALENES.—The firelighter quality is quoted at £3 10s. to £3 15s. per ton, the 74/76 quality at about £4 to £4 5s. per ton, and the 76/78 quality at about £5 per ton.

PITCH.—Unchanged, at 37s. 6d. to 42s. 6d. per ton, f.o.b. East Cosat port.

Nitrogen Fertilisers

SULPHATE OF AMMONIA.—*Export.*—The market continues quiet, but producers are holding firm for £7 to £7 5s. per ton, f.o.b. U.K. port in single bags for prompt shipment. Higher prices are quoted for forward. In view of the depressed financial condition of the growers of several plantation products, buyers are hesitating to purchase for forward delivery. *Home.*—Prices for October delivery are £9 1s. delivered in 6-ton lots to farmer's nearest station. Apart from fertiliser manufacturers there is very little interest.

NITRATE OF SODA.—There is no change in the position of this product.

Latest Oil Prices

LONDON, October 8.—LINSEED OIL was firm, unchanged to 7s. 6d. per ton higher. Spot, ex mill, £29, nominal; October, £25 2s. 6d.; November-December, £24 5s.; January-April, £23 12s. 6d.; May-August, £23 10s., naked. RAPE OIL was inactive. Crude extracted, £32; technical refined, £33 10s., naked, ex wharf. COTTON OIL was quiet. Egyptian crude, £23 10s.; refined common edible, £29; deodorised, £31, naked, ex mill. TURPENTINE was steady. American, spot, 34s. 6d.; November-December, 34s. 9d.; January-April, 36s. 6d. per cwt.

HULL.—LINSEED OIL.—Spot, £27 5s.; October, £25 15s.; November-December, £24 15s.; January-April, £23 17s. 6d.; May-August, £23 12s. 6d. per ton, naked. East Indian, spot, unquoted. COTTON OIL.—Egyptian crude, spot £22, edible refined, spot, £25; technical, spot, £24 15s.; deodorised, spot, £27. PALM KERNEL OIL.—Crude, 5½ per cent., spot, £24, naked. GROUNDNUT OIL.—Crushed extracted, spot, £27; deodorised, spot, £31. SOYA OIL.—Extracted, spot and crushed spot, £24 10s.; deodorised, spot, £28. TURPENTINE.—36s. 6d. per cwt. for spot. CASTOR OIL and COD OIL.—Quiet at late rates.

Scottish Coal Tar Products

WHILE prices of most products remain easy, more interest is being taken by buyers, and some contracts have been placed for reasonable quantities. Water white products are dull with quotations easier.

Cresylic Acid.—The reduction intimated last week has resulted in more orders, although these are for comparatively small quantities. Pale, 99/100%, 1s. 9d. to 1s. 10d. per gallon; pale, 97/99%, 1s. 8d. to 1s. 9d. per gallon; dark, 97/99%, 1s. 7d. to 1s. 8d. per gallon high-boiling, 1s. 8½d. to 1s. 10½d. per gallon; all f.o.r. makers' works.

Carbolic Sixties.—The nominal price remains at 2s. per gallon, ex works.

Creosote Oil.—Timber preserving grades remain quiet. Specification oil, 2⅞d. to 3¼d. per gallon; gas works ordinary, 3¼d. to 3½d. per gallon; washed oil, 3d. to 3¼d. per gallon; all in bulk quantities f.o.r.

Coal Tar Pitch.—Inquiries are plentiful but orders are scare. Nominal export value is 45s. to 47s. 6d. per ton, f.a.s. Glasgow, while home price is easy at about 45s. per ton free on rails.

Blast Furnace Pitch.—Market remains very quiet with controlled prices unchanged at 30s. per ton f.o.r. works for home trade, and 35s. per ton, f.a.s. Glasgow for export.

Refined Coal Tar.—New business is gradually falling off. Quotations are about 3d. to 3¼d. per gallon naked at makers' works.

Blast Furnace Tar.—Without interest at 2⅞d. per gallon.

Crude Naphtha.—Available supplies command about 4d. per gallon, ex makers' works.

Water White Products.—Very few orders have been placed since the petrol "cut." Motor benzol is valued at about 1s. 5d. per gallon, while naphthas are still quoted at 1s. 2¾d. to 1s. 3¾d. per gallon for 90/160 and 1s. to 1s. 1d. per gallon for 90/190; all f.o.r. in bulk quantities.

South Wales By-Products

THERE is very little change to report in South Wales by-product activities. The general volume of business done is small and the immediate outlook is not satisfactory. The call for pitch is slightly better, but supplies remain well in excess of demand. Quotations are unchanged. Motor benzol continues to have a fair, steady call round about 1s. 4½d. per gallon, but creosote remains weak. Solvent naphtha is in fair request round about 1s. 3½d., but heavy naphtha is slow at from 11d. to 1s. 1d. per gallon. Refined tars have a steady, if moderate, call, with quotations for gasworks or coke-oven tar unchanged. Road tar has a steady call at about 13s. per 40-gallon barrel. Patent fuel and coke exports continue to expand, but are still far from satisfactory. Patent fuel prices for export are :—21s. 6d., ex-ship Cardiff; 20s., ex-ship Newport; 20s to 21s., ex-ship Swansea.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing this firm's independent and impartial opinions.

Glasgow, October 6, 1930.

THE Scottish heavy chemical market during the past week has remained fairly steady. Inquiries for home and export are still active.

Industrial Chemicals

ACETONE.—B.G.S.—£71 10s. to £80 per ton, ex wharf, according to quantity. Inquiry remains satisfactory.

ACID, ACETIC.—Prices ruling are as follows: glacial, 98/100%, £47 to £58 per ton; pure, £37 5s. per ton; technical, 80%, £30 5s., delivered in minimum 1-ton lots.

ACID, BORIC.—Granulated commercial, £22 per ton; crystals, £23; B.P. crystals, £31 per ton; B.P. powder, £32 per ton, in 1-cwt. bags, delivered free Great Britain in one-ton lots upwards.

ACID, HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. per carboy, ex works, full wagon loads.

ACID, NITRIC, 80° QUALITY.—£23 per ton, ex station, full truck loads.

ACID, OXALIC.—98/100%.—On offer at the same price, viz.: 3¼d. per lb., ex store. On offer from the Continent at 3½d. per lb., ex wharf.

ACID, SULPHURIC.—£3 2s. 6d. per ton, ex works, for 144° quality; £5 15s. per ton for 168°. Dearsenicated quality, 20s. per ton extra.

ACID, TARTARIC, B.P. CRYSTALS.—Quoted 1s. 1d. per lb., less 5%, ex wharf. On offer for prompt delivery from the Continent at 1s. 2½d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE.—Quoted at round about £8 15s. per ton, ex stoie.

ALUM, LUMP POTASH.—Now quoted £8 7s. 6d. per ton., c.i.f. U.K. ports. Crystal meal, about 2s. 6d. per ton less.

AMMONIA ANHYDROUS.—Quoted 10¼d. per lb., containers extra and returnable.

AMMONIA CARBONATE.—Lump quality quoted £36 per ton. Powdered, £38 per ton, packed in 5 cwt. casks, delivered U.K. stations or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Fine white crystals offered from the Continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE.—Spot material obtainable at round about £32 per ton, ex wharf. On offer for shipment from China at about £31 per ton, c.i.f. U.K.

ARSENIC, WHITE POWDERED.—Quoted £18 per ton, ex wharf, prompt shipment from mines. Spot material still on offer at £19 15s. per ton, ex store.

BARIUM CHLORIDE.—In good demand and price about £11 per ton, c.i.f. U.K. ports. For Continental material our price would be £10 per ton, f.o.b. Antwerp or Rotterdam.

BLEACHING POWDER.—British manufacturers' contract price to consumers unchanged at £6 15s. per ton, delivered in minimum 4-ton lots. Continental now offered at about the same figure.

CALCIUM CHLORIDE.—Remains unchanged. British manufacturers' price, £4 15s. to £5 5s. per ton, according to quantity and point of delivery. Continental material on offer at £4 15s. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—At about £3 15s. per ton, f.o.r. works, or at £4 12s. 6d. per ton, f.o.b U.K. ports.

FORMALDEHYDE, 40%.—Now quoted £33 per ton, ex store. Continental on offer at about £32 per ton, ex wharf.

GLAUBER SALTS.—English material quoted £4 10s. per ton, ex station. Continental on offer at about £3 per ton, ex wharf.

LEAD, RED.—Price now £33 per ton, delivered buyers' works.

LEAD, WHITE.—Quoted £46 per ton, c.i.f. U.K. ports.

LEAD, ACETATE.—White crystals quoted round about £39 to £40 per ton ex wharf. Brown on offer at about £2 per ton less.

MAGNESITE.—GROUND CALCINED.—Quoted £9 per ton, ex store. In moderate demand.

METHYLATED SPIRIT.—Industrial quality 64 o.p. quoted 1s. 8d. per gallon less 2½% delivered.

POTASSIUM BICHROMATE.—Quoted 4⅛d. per lb., delivered U.K. or c.i.f. Irish ports, with an allowance for contracts.

POTASSIUM CARBONATE.—Spot material on offer, £25 10s. per ton ex store. Offered from the Continent at £24 15s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 99¾/100% POWDER.—Quoted £26 5s. per ton ex store; crystals 30s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £20 17s. 6d. per ton, c i.f. U.K. ports. Spot material on offer at about £20 10s. per ton ex store.

POTASSIUM PERMANGANATE B.P. CRYSTALS.—Quoted 5d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Spot material quoted 7d. per lb. ex store. Offered for prompt delivery from the Continent at about 6¾d. per lb. ex wharf.

SODA CAUSTIC.—Powdered 98/99%, £17 10s. per ton in drums, £18 15s. in casks. Solid 76/77% £14 10s. per ton in drums, £14 12s. 6d. per ton for 70/72% in drums, all carriage paid, buyer's station, minimum four-ton lots. For contracts 10s. per ton less.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3⅞d. per lb., delivered buyer's premises, with concession for contracts.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, 27s. 6d. per ton extra. Light soda ash, £7 13s. per ton, ex quay, minimum four-ton lots, with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum four-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum four-ton lots.

SODIUM NITRATE.—Chilean producers now offer at £10 2s. per ton, carriage paid, buyer's sidings, minimum six-ton lots, but demand in the meantime is small.

SODIUM PRUSSIATE.—Quoted 5¼d. per lb., ex store. On offer at 5d. per lb., ex wharf, to come forward.

SODIUM SULPHATE (SALTCAKE).—Prices, 55s. per ton, ex works; 57s. 6d. per ton, delivered for unground quality. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption: solid 61/62%, £10 per ton; broken, 60/62%, £11 per ton; crystals 30/32%, £8 2s. 6d. per ton, all delivered buyers' works on contract, minimum four-ton lots. Special prices for some consumers. Spot material 5s. per ton extra. Crystals 2s. 6d. per ton extra.

SULPHUR.— Flowers, £12 per ton; roll, £10 10s. per ton; rock, £9 5s. per ton; ground American, £9 5s. per ton, ex store.

ZINC CHLORIDE 98%.—British material now offered at round about £18 per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—Quoted £12 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Result of Brownlac Test

Substance Produced Unsatisfactory

THE first ordinary general meeting of the shareholders of Brownlac, Ltd., which was held on September 15 and adjourned for a final test to be made under specific conditions of the production of brownlac, was resumed in London on Monday. The Chairman said that Mr. Rushton, who was to have carried out the test production, did not notify the directors until the preceding Thursday that he was ready for the test to be taken. The test was made on the Friday.

Dr. Parry, who represented the directors at the test, stated in his report that the substance produced in the test had no claim to be called synthetic shellac or artificial shellac. He recommended that the company should not spend another day or another penny on carrying out these experiments, which, in his opinion, could not yield any satisfactory results.

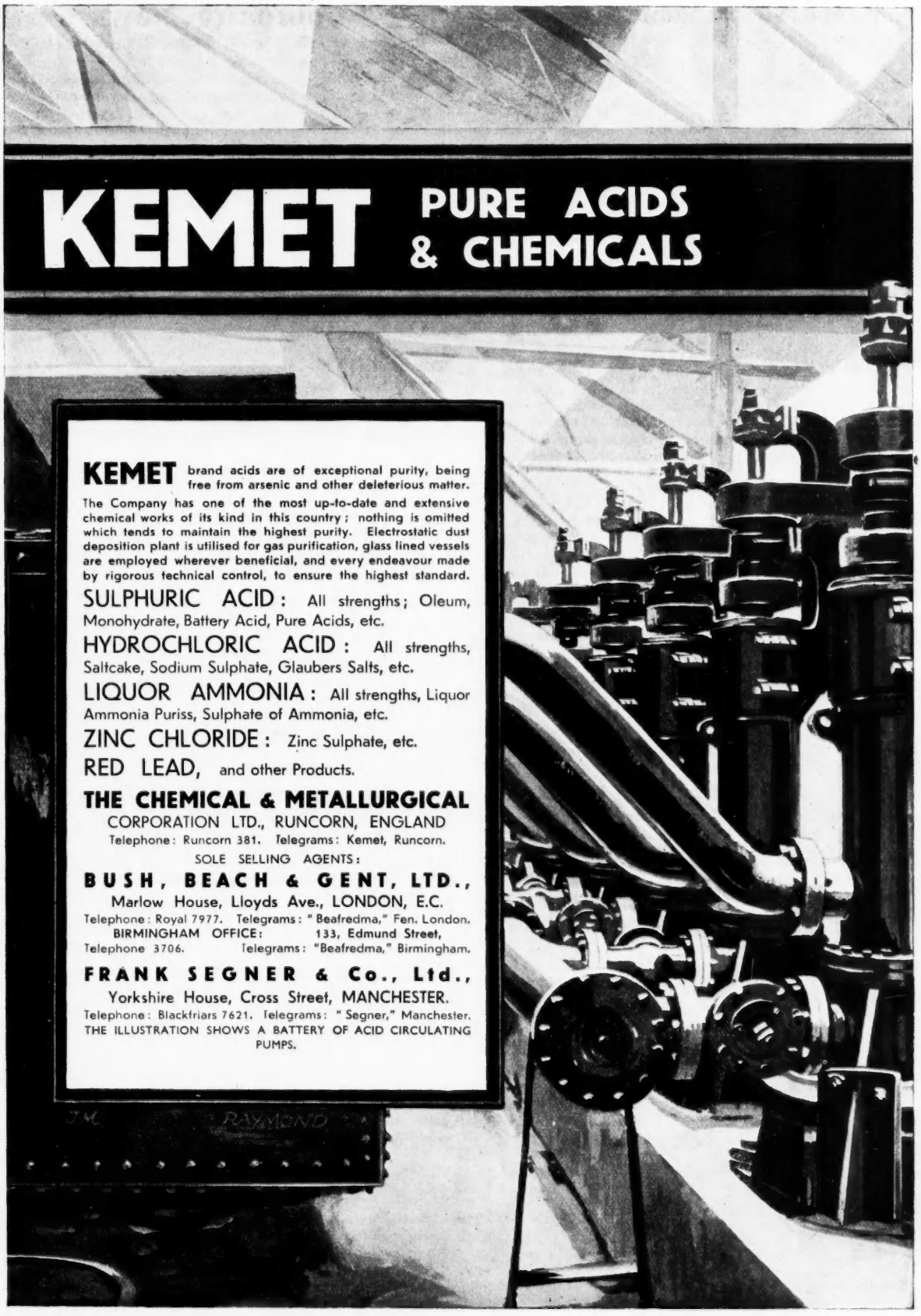
Mr. Rushton said that there had been delay in carrying out the test because he could not get the necessary machinery. The secret ingredient, which came to hand only late on Friday, was in a very moist condition and hardly ready for use. He could produce perfect artificial shellac, but he had been hampered by a board which had shown very little energy and initiative.

Dr. Parry said he would stake his professional reputation that the sample produced in June and described as " perfect " was not composed of the same ingredients as the sample made in Friday's experiment.

Colonel Hallett, a shareholder, asked if Dr. Parry was making a charge of fraud against the vendor or others.

Dr. Parry disclaimed having done so, but reiterated his statement.

The resolution for the adoption of the report and accounts, which showed a loss of £5,950 up to June 30, was declared lost on a show of hands and a poll was demanded. The result was: For the resolution, 168,370; against, 148,980.



KEMET brand acids are of exceptional purity, being free from arsenic and other deleterious matter.

The Company has one of the most up-to-date and extensive chemical works of its kind in this country; nothing is omitted which tends to maintain the highest purity. Electrostatic dust deposition plant is utilised for gas purification, glass lined vessels are employed wherever beneficial, and every endeavour made by rigorous technical control, to ensure the highest standard.

SULPHURIC ACID: All strengths; Oleum, Monohydrate, Battery Acid, Pure Acids, etc.

HYDROCHLORIC ACID: All strengths, Saltcake, Sodium Sulphate, Glaubers Salts, etc.

LIQUOR AMMONIA: All strengths, Liquor Ammonia Puriss, Sulphate of Ammonia, etc.

ZINC CHLORIDE: Zinc Sulphate, etc.

RED LEAD, and other Products.

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Telephone 3706. Telegrams: "Beafredma," Birmingham.

FRANK SEGNER & Co., Ltd.,
Yorkshire House, Cross Street, MANCHESTER.
Telephone: Blackfriars 7621. Telegrams: "Segner," Manchester.

THE ILLUSTRATION SHOWS A BATTERY OF ACID CIRCULATING PUMPS.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, October 9, 1930.

There is a certain amount of inquiry in circulation on the chemical market here in respect of forward delivery transactions, but, for the most part, these seem to be largely in the nature of feelers, for actual orders during the past week for delivery ahead have not by any means been extensive. Having regard to industrial conditions in this part of the country, however, a moderate amount of business for prompt or near delivery dates is being put through. A reactionary tendency is still in evidence in more than one section, though these are relatively few in number, values generally being reasonably steady.

Heavy Chemicals

A quietly steady demand for bicarbonate of soda, largely against contracts, is reported and prices are held at about £10 10s. per ton. Caustic soda meets with a fair inquiry, with offers ranging from £12 15s. to £14 per ton, in contracts and according to quality. Sales of hyposulphite of soda just now are of rather limited extent, but values keep up at round £15 per ton for the photographic material and £9 or thereabouts for the commercial kind. Bichromate of soda is moving off in fair quantities, and quotations are steady on the basis of 3⅜d. per lb., less 1 to 3½ per cent., according to quantity. Prussiate of soda is firm and in quietly steady request at from 4¾d. to 5¼d. per lb., according to quantity. The tendency of prices in the case of chlorate of soda seems to be towards lower levels and at £23 10s. to £24 per ton buying interest in this material is rather slow. Offers of phosphate of soda are down to about £10 per ton and the demand this week has been quiet. Alkali is steady at £6 per ton, and a fair weight of business is being put through. Sulphide of sodium is unchanged either in position or value, trade being slow at round £7 10s. per ton for the commercial quality and £8 10s. for the 60 to 65 per cent. concentrated solid. Saltcake is in moderate request at up to £3 per ton.

Buying interest in chlorate of potash this week has been quiet, but at £25 10s. per ton there has been little actual change in prices. Permanganate of potash is held at 5⅜d. per lb. for the B.P. grade and 5¼d. for the commercial material, but sales continue on moderate lines. The demand for carbonate of potash is on the slow side, with current offers at round £25 per ton. Yellow prussiate of potash keeps up at from 6¾d. to 7¼d. per lb., according to quantity, and a quietly steady trade is being done. Bichromate of potash meets with a moderate inquiry and values are unchanged on the week at 4½d. per lb., less 1 to 3½ per cent. The tendency in caustic potash is still easy and down to £28 per ton has been mentioned here during the past week, with the demand quiet.

Arsenic maintains its firmness at about £17 per ton at the mines for white powdered, Cornish makes, although there is nothing remarkable about the demand for this material. Offers of sulphate of copper are at round £21 per ton, f.o.b., a moderate inquiry being reported. The acetates of lime are inactive, with supplies of the grey quality obtainable at £14 per ton and of the brown at £7 5s. The lead products are moving in rather limited quantities, and quotations are weak and uncertain at about £20 per ton for the nitrate and £35 10s. and £34 10s. for the white and brown acetates.

Acids and Tar Products

No more than a quiet trade is passing in tartaric acid which is easy at from 11d. to 11½d. per lb. Citric acid is about maintained at last week's level of 1s. 6d. per lb., with the demand rather slow. Acetic acid meets with a moderate inquiry and quotations in this section are held at from £47 to £51 per ton for the glacial and round £37 for the 80 per cent. commercial. Oxalic is in quiet demand at £1 11s. 6d. per cwt., ex store.

Pitch values keep up at from 45s. to 47s. 6d. per ton, f.o.b., moderate bookings for shipment being made. Creosote oil is fairly steady at from 3¼d. to 4¼d. per gallon, naked, according to quality. Carbolic acid is quiet and easy at 6½d. to 7d. per lb. for crystals and down to 1s. 6d. per gallon for crude 60's. Solvent naphtha is in fair request at from 1s. 2d. to 1s. 3d. per gallon, naked.

Company News

Babcock and Wilcox.—The directors have declared an interim dividend of 7 per cent., free of tax.

Broken Hill South, Ltd.—The directors have declared a dividend of 6d. per share (2½ per cent.), payable on November 21.

Swedish Match Co.—An interim dividend of 5 per cent. on the "A" and "B" shares is announced, payable on October 15.

Borax Consolidated.—The half-yearly coupon No. 63 of preference share warrants to bearer will be paid, it is announced, less tax, on and after November 1.

Associated Dyers and Cleaners, Ltd.—An interim dividend of 6d. per share (2½ per cent.) is announced on the ordinary shares, payable, less tax, on October 31. The usual half-yearly dividend on the preference shares will also be paid on that date.

Glenboig Union Fireclay Co.—The balance at the credit of the profit and loss account as at August 31 last, after transferring £5,000 from reserve funds, amounts to £6,141. The directors recommend a dividend of 2½ per cent., less tax, absorbing £2,906, carrying forward £3,235.

Burt, Boulton and Haywood, Ltd.—The directors have decided to recommend a final dividend for the year ended June 30, 1930, of 5 per cent., less tax, on the ordinary shares, payable on or before October 17, 1930. While this is at the same rate as last year's final, the total distribution at 9 per cent. shows a reduction of 1 per cent., owing to the interim being 4 per cent., against 5 per cent. last year.

Norwegian Nitrogen Products

Substantial Shipments to Egypt

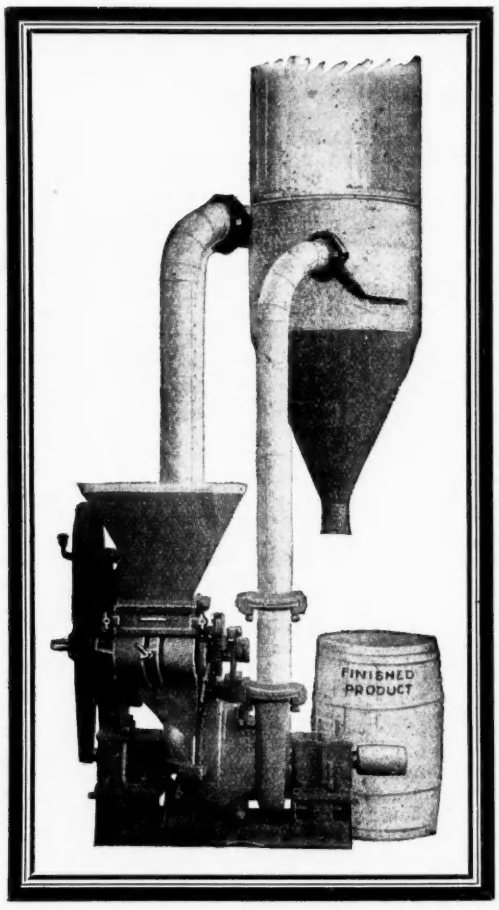
The Nors, Hydro A/S, with factories at Rjukan and Notodden, and the Odda Smelteverk at Odda, on the west coast of Norway, are important producers of nitrogenous fertiliser materials. The Nors, Hydro is producing these salts: (1) Norgessalpeter, the original product of the company and undoubtedly still its best seller, with a 13 per cent. content of nitrogen and 26 per cent. of lime; (2) Kalksalpeter, with 15·5 per cent. of nitrogen, and 28 per cent. of lime, and (3) Kalkammonsalpeter, containing 20·5 per cent. of nitrogen and 20 per cent. of lime.

The two last mentioned products are put up in granular form, and it is evident, writes the U.S. Commercial Attaché at Oslo, that Norsk Hydro Co. intends to concentrate on their sale rather than the old Norgessalpeter, which is relatively low in nitrogen content. Norsk Hydro A/S is shipping rather large quantities of its products to Egypt this year, total shipments so far amounting to approximately 50,000 tons. The Odda Smelteverk A/S produces cyanamide under the trade name "Odda," which comes in two different strengths, one containing 16 per cent. nitrogen with 60 per cent. lime, and the other 10½ per cent. nitrogen with 60 per cent. lime.

Kelly's Directory of the Chemical Industries, 1930

A new edition, the eighteenth, of *Kelly's Directory of the Chemical Industries* has just been issued, fully revised and corrected and over one hundred pages larger than its predecessor. The directory covers England, Scotland and Wales, and contains the names and addresses of those engaged in the many branches of the industry, both on the manufacturing and selling sides. They are adequately dealt with and classified under some 800 headings and over 90 separate headings are employed for chemical manufacturers. In the places section names are arranged alphabetically under the towns and villages of each county, and there are separate alphabetical trade classifications for London and country names. The list of branded articles and specialities with the addresses of the manufacturers has undergone complete revision and a re-classification of the very useful index to trades and professions has had the effect of extending it by two full pages. The volume can be obtained from Kelly's Directories, Ltd., 186, Strand, London, at the price of 30s. post free.

DUSTLESS GRINDING



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THE wide adaptability and high efficiency of this mill is attested by the fact that over 300 are operating on many kinds of materials.

"0000" Pulverisers reduce materials by impact in the grinding chamber, the fine ground product being drawn away by the fan.

No screens are necessary in operation. The air current passes through the fan into the cyclone collector, carrying away the fines and depositing powder into collector.

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One of these machines can be seen in actual operation at our Derby Test Plant.

No. "0000" Pulverisers are operating on many kinds of materials, including: **BAKELITE, CHEMICAL COMPOUNDS, CLAYS, DRY COLOURS, DYES, FILTER PRESS PRODUCTS, GYPSUM, HYDRATED LIME, LITHARGE, MOULDING COMPOUNDS, PARIS GREEN, SULPHUR, TALC, KAOLIN, Etc.**

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Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgment

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

CLAYTON AND CO., 115, Wardour Crescent, Luton, wholesale druggists. (C.C., 11/10/30.) £32 3s. 6d. September 3.

PREMIER DRUG CO., LTD., Fairy Hill Works, Marwood Street, Manchester, druggists. (C.C., 11/10/30.) £29 3s. 2d. July 3.

Deed of Arrangement

[The following deeds of arrangement with creditors have been filed under the Deeds of Arrangement Act, 1914. Under this Act it is necessary that private arrangements other than those executed in pursuance of the Bankruptcy Act shall be registered within seven clear days after the first execution by the debtor or any creditor. These figures are taken from the affidavit filed with the registered deed, but may be subject to variation on realisation.]

PATTERSON, Robert Henry, 430, Corn Exchange, Manchester, and 527, Lytham Road, Blackpool, chemical merchant. (D.A., 11/10/30.) Dated September 30, filed October 1. Trustee, H. Sharp, 30, Brown Street, Manchester. Secured creditors, £88; liabilities unsecured, £258; assets, less secured claims, £75.

Mortgages and Charges

*[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debt due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]*

IDEAL CLEANERS AND DYERS, LTD., London, W. (M., 11/10/30.) Registered September 29, debenture, to Bank; general charge. *£25,000. March 22, 1930.

MAY (W.), LTD., Sheffield, dyers and cleaners. (M., 11/10/30.) Registered September 17, mortgage for £690 and further advances, to Building Society; charged on 16, High Street, Mexborough. *——. September 12, 1929.

Satisfactions

IDEAL CLEANERS AND DYERS, LTD., London, W. (M.S., 11/10/30.) Satisfaction registered September 29, all moneys, etc., registered January 12, 1923.

MOORE (CHARLES) AND CO., LTD., Liverpool, chemical manufacturers. (M.S., 11/10/30.) Satisfaction registe ed September 26, £10,000, registered January 16, 1915.

New Companies Registered

BURTS AND HARVEY, LTD., Eling House, Eling, Hants.—Registered as a "private" company on October 1. Nominal capital, £150,000 in £1 shares (50,000 7 per cent. cumulative preference and 100,000 ordinary). To acquire (1) that portion of the business carried on by Burt, Boulton and Haywood, Ltd., which is known as the rar department of their Eling Works, at Totton, near Southampton; and (2) that portion of the business carried on by Mrs. M. E. Harvey and F. Kilpatrick, as "T. H. Harvey," which is known as the "Stanshaw Chemical Works," at Portsmouth, and to carry on the business of tar distillers, manufacturers of and dealers in coke, coal tar, pitch, ammoniacal liquor and other residual products, alizarine, colours, dyes, dyestuffs, chemicals and chemical products of all kinds, etc. Directors: Lt.-Col. O. E. Boulton, F. Kilpatrick, H. Fergusson, G. E. H. Yonge, Major T. E. Hulbert, Lt.-Col. V. B. Thurston.

H. MARCEL GUEST, LTD., Whittleys Buildings, Oliver Street, Manchester.—Registered October 4. Nominal capital £1,000 in £1 shares. To acquire the business of a manufacturer, importer and exporter of and dealer in capping solutions and cellulose products and chemical solvents now carried on by H. Marcel Guest at Oliver Street, Manchester. Directors: H. Marcel Guest, H. J. Falder, F. Wilson.

New Chemical Trade Marks

Applications for Registration

These lists are specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to November 1, 1930.

RESOLIN.

514,651. Class 1. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives, but not including compounds for preventing incrustation in the water jackets of gas and oil engines, and not including any goods of a like kind to these excluded goods. Chemical Works formerly Sandoz, also trading as Chemische Fabrik Vormals Sandoz, and as Fabrique de Produits Chimiques Ci-Devant Sandoz (a company duly incorporated under the laws of Switzerland), 60, Fabrikstrasse, Basle, Switzerland; manufacturers. July 17, 1930. To be Associated with No. 514,652 (2,737) iv. (By Consent.)

ERIONAL.

514,558. Class 1. Artificial dyestuffs derived from coal tar. J. R. Geigy Société Anonyme (a Joint Stock company organised under the laws of Switzerland), 51 and 57, Tiehenring, Basle, Switzerland; manufacturers.—July 14, 1930. To be Associated with No. 423,594 (2,301) and another.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries:—

154 (*Urea Sulphate.*)—The names of manufacturers and merchants of urea sulphate are required.

155 (*Wood Charcoal.*)—An inquirer in Warrington is anxious to be put into touch with suppliers of granulated wood charcoal in half ton or five cwt. lots.

156 (*Luminous Paint.*)—A subscriber desires the name of a manufacturer or wholesaler of luminous paint of the zinc sulphide-mesothorium bromide class.

157 (*Vitreo-Colloid*).—An inquiry has been received for the name of the maker of vitreo-colloid used in the manufacture of laminated or safety glass.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal" have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

SOUTH AFRICA.—The South African Railways and Harbours Administration is calling for tenders to be presented in Johannesburg by October 27 for the supply of ready mixed and paste paints, paint ingredients, etc. (Tender No. 1,762.) (Ref. No. B.X. 6,796.)

TURKEY.—The Director-General of Posts, Telegraphs and Telephones is calling for tenders to be presented in Turkey by October 16 for the supply of porcelain insulators. (Ref. No. 324.)

Tariff Changes

YUGOSLAVIA.—The Customs duty on crude (commercial) acetic acid and acetate of lime has been increased from 5 to 50 gold dinars for 100 kilogs. under the minimum tariff, and from 6 to 60 under the maximum.